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## EGGS OF THE SPOON-BILL SANDPIPER (*EURYNORHYNCHUS PYGMEUS*).

BY JOHN E. THAYER.

*Plates II and III.*

LAST spring I sent an expedition to Wrangel Island in charge of Mr. Johan Koren, with instructions to collect during the summer on the way up and to winter on the island, so that collecting could be begun as soon as possible in the spring of 1911. A vessel was purchased and a crew selected. They sailed from Seattle May 1. All went well until they encountered a terrible storm on May 13, which nearly destroyed the vessel. She was in such bad shape that it was decided to return and hire another boat. This was found impossible and Koren with two of his crew shipped on a trading vessel that was going to touch along the eastern coast of Siberia.

Mr. Koren thought he could land near Cape Serdze and find the nest of the Spoon-bill Sandpiper (*Eurynorhynchus pygmeus*), because he had collected a few specimens of this species in this locality the previous year; but the pack ice was so bad that the captain of the vessel was afraid to risk his ship and they had to turn back.

Captain F. Kleinschmidt, starting on a trading and collecting trip a week earlier than Koren, managed to get to Cape Serdze and had the good fortune to find the first nest and four eggs of

the Spoon-bill Sandpiper. The parent bird, with the nest and eggs, was taken; also photographs. The nest was in the tundra, well concealed, especially so when the bird was incubating. Unfortunately this was the only set taken, as the season was advanced, it being then July 15. Captain Kleinschmidt took eight downies a few days old, which I have in my collection. The set of eggs was nearly incubated. The measurements are as follows: 1.20 × .92; 1.22 × .90; 1.20 × .88; 1.30 × .90 inches. I hope next year to collect many sets of this interesting bird as I shall send Mr. Koren to Cape Serdze in the spring.

The following is taken from a letter I received from Captain Kleinschmidt: "I was in hopes that I could get five or six clutches of the Spoon-bills, so I took all kinds of chances with my boat in the ice on the Siberian coast. I found, however, but one set of eggs and they were just ready to hatch.

"The male is the parent bird of the eggs, but the female belongs to neither eggs or downies, simply because the habits of this Sandpiper are similar to those of the Phalarope. The male has to stay at home, keep house and attend to the young, while the female thinks she has done all that is necessary by merely fulfilling the duties nature demands of her, namely the laying of the eggs. I shot the female in close proximity of the nest, but we never found a female with the downies. It was always the male. Although our observations were limited to but a few, still I believe the male solely attends to the hatching and the rearing of the young. The female also is larger than the male.

"The nest as well as the downies were found on the gentle slope of the tundra, bordering small fresh-water ponds. The nest was a rounded hollow in the moss, thickly lined with dry willow leaves. The downies blend so perfectly with the color of the moss that the closest scrutiny will scarcely reveal their hiding place. My pictures were not a success. I did n't have the adequate camera. I am sending you, however, two copies of each. On one I have traced the bird so you may find him in the other."

If this is true, that the male incubates instead of the female, it is extremely interesting. In looking over my series of fourteen skins, all adults, I find the females are larger and their mandibles noticeably so.

A most interesting fact is that the nestlings just hatched out of their shells, have perfectly formed spoon bills as seen in plate II. This must indicate that this species is a very old one.

The two plates are from drawings by Mr. E. N. Fischer. The figures are all natural size.

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## NEST LIFE OF THE SCREECH OWL.[1]

BY ALTHEA R. SHERMAN.

IN LARGE boxes put up for the accommodation of Woodpeckers lived the Screech Owls from whose nest lives these studies were made. It was in one of these soap-boxes, nailed against the trunk of a willow tree that the first of these Owls was seen on March 24, 1909; evidently it had been there in January of that year, as the feathers of a luckless Bohemian Waxwing remained to prove. A Screech Owl was seen to spend the day there again on March 30 and on April 2 and 18. On the morning of April 5 a rufous feather fluttering from the entrance hole of the west flicker-box in the barn betrayed the nesting place. The bottom of the box was covered with excelsior in which the female had scratched a hollow in the corner farthest from the entrance, where she was sitting on four fresh eggs. For six days the nest was closely watched and the following facts were ascertained. The meat-offerings brought by her mate and dropped through the hole for his divinity within consisted of a white-footed mouse on two of the mornings, and a Junco on two of them, while on the remaining two mornings nothing was there. On two evenings the female went out early before the nest watch began; on other two she went out after dark alone, and on two evenings her mate came after dark to the hole and called her with a very low cry, which once was answered by a low sharp note from the female, who on both even-

[1] Copyrighted, 1911, by Althea R. Sherman.

ings, almost immediately went out to join him in the search for refreshments. This little incident may be of interest to two classes of people, the sentimentalist and the evolutionist, who may be seeking the missing link between the Screech Owl and the young man who calls to take his lady-love out for ice-cream.

The evening of April 10 was one of those upon which the female had gone out early before the nest was visited. A watch of more than two hours was maintained in order to learn the length of her absence from her eggs. In the meantime a violent wind storm sprung up, that continued all night and the following day, wrecking wind-mills and some buildings. Once the scratching of the bird's claws against the barn was heard, but she failed to come in, probably the fury of the storm prevented her making the home port; however it may have been, she did not return to her eggs, and the history of this nest was closed.

In the following June a nest-box was built into one corner of my blind in the hopes that it might serve an anxious pair of Flickers that were house-hunting. At the same time the future needs of the Screech Owls were kept in mind, as this new nest is just eighty-five feet from the box on the willow in which the male Owl had his head-quarters. The nest in the blind has a depth of twenty inches and a bottom area of eight by twelve inches. The bottom was covered with a thick layer of sawdust over which was spread a deep bed of excelsior. Very unfortunately for the most satisfactory sort of observations the top of the nest comes to the roof of the blind so that the two peep-holes from necessity were made in the sides. There is a hand-hole also, which is covered by a door.

In 1910 the Owls were not seen until the sixteenth day of March, when the male sat in his box on the willow, and the female with a mouse beside her in the nest in the blind, where the first egg was laid on March 27. Until that time came these birds were seen in their respective boxes on but four days. Meanwhile the box in the blind and the nest box in the barn showed signs of nocturnal visits by the scratched up condition of the excelsior in them.

The first egg was found in the nest on the morning of March 27, and was still alone on the evening of the 29th. The following day the nest was not visited, the only day in two months and a half, when visits were omitted. No doubt the second egg was laid

some time on the 30th of March; the third one was deposited on April 1, but two days intervening between the laying of the second and third eggs, while three or more days were the period between the other layings. The fourth egg was in the nest at half past four o'clock in the afternoon of April 4, but was not there at eight o'clock on the previous evening. This shows that it took from eight to nine days to complete the clutch of four eggs. Whether the Owl laid in the night, or in the morning as other birds do, was not ascertained.

The blind, intended as a shelter while watching migrating birds, was built upon posts on a tiny plot of nearly solid earth in a small quagmire. In an air line it stands three hundred feet from the house, and nearly that distance back from the street. When the young Owls were almost ready to leave the nest they were freely exhibited to the neighbors, but previous to that time the existence of the nest was revealed to only a half dozen friends, who proved that six women could keep a secret. In its outside dimensions the blind is but forty-five inches square, hence when four of us entered it, the audience in the ceremony of viewing the Owls, like that of the Greek Orthodox Church, remained standing.

Such were the quarters and surroundings in which the study of the nest was conducted. It was generally visited several times during the day and at least once every evening; the time for the evening visits was usually an hour or two after dusk. Besides them there were two night watches that extended through the greater part of the night, one to half past two, and the other to three o'clock in the morning; and still another, begun after midnight, lasted over an hour. Once a lamp was burned for a few hours, during the rest of the long watches the time was spent in darkness. When an examination of the nest was desired it was illumined by a flash-light lantern. All pictures of these night watches must from necessity be silhouettes, easily drawn by the imagination of anyone. The only really exciting time was the evening of April 5, when a thunderstorm was raging; the rain beat hard upon the roof and sides of the blind, and the wind blew great gusts, which momentarily seemed to threaten the overthrow of my frail shelter. If there should be a fifth egg it was imperative that the fourth one should be marked that night, so for more than an hour the going out of the female was tremulously awaited.

The Owl of 1909 went out every evening and such procedure was expected of this one without fulfillment. Constant incubation appears to have begun on the first day of April after which she was frightened out on two evenings, one of them being the stormy night just mentioned. In order to count the eggs she was pried up with a stick thrust through a peep-hole. Out she would not go although her exit was anxiously awaited night after night until the thirteenth of the month, when once more she was frightened out in order that the eggs might be weighed. Then 248 grains was the weight of egg No. 1: 250 grains that of No. 2; 236 grains of No. 3, and 219 grains of No. 4. When fresh probably they weighed about the same as the eggs of the previous year, viz.: 252, 253, 255 and 261 grains, these figures being arranged in the order of their sizes. Just before it hatched egg No. 3 weighed 199 grains and No. 4 weighed 193 grains. The owlet from the last egg tipped the scales at 153 grains as it came from the shell. Eggs No. 1 and No. 2 were found to have hatched on April 27; No. 3 hatched the following night, and No. 4 about five o'clock in the afternoon of April 29, showing that the period of their incubation was about twenty-six days.

Unlike many other young birds newly hatched Screech Owls are in one of their most attractive guises. Covered to the tips of their toes with a thick white down, they appealed strongly to the hearts of the human mothers who saw them, and as one of them remarked the little owls "looked as if they had white socks on." As they tumbled about in their nest they very forcibly suggested human babies in fleecy white cloaks that are learning to creep. Held in the hand with their beaks downward and out of sight they looked like diminutive blind kittens; perhaps the most noticeable thing about them at that age was their large heads. But this winning aspect of the nestlings was of short duration. In a few days the pin-feathers began to show in the white down which soon turned to a dirty gray color. By the time they were twelve days old they had become most repulsive, exceedingly filthy to handle with an appearance that was decidedly repellant. Perfect miniatures were they of a doddering, half-witted old man: the blue beak was prominent and suggested a large hooked nose, while the down below it took the shape of a full gray beard, and that on

the top of the head looked like the gray hair that covers a low, imbecile forehead: the eyes not fully open were bluish in color, and had a bleared and half-blind appearance. This loathsome semblance lasted no longer than ten days by which time the eyes were full and bright and yellow, the bird was covered with a thick gray down, and looked as if a fac-simile of it could very easily be made from a bunch of gray wool devoid of any anatomy. After this its aspect steadily improved as its feathery covering developed. All the young were of the red phase, as were both of the parents, the male being a deeper rufous.

A friend, a Southern lady, well known because of her writings on negro folk-lore, has written me that the negroes call this species of owl the Shivering Owl. Some ornithologists have suggested that this common name may have reference to the shivering quality of the bird's call-notes. It seems possible that ornithologists may have overlooked a characteristic of this species apparently familiar to many a pickaninny as well as to some bird-nesting boys of a lighter color, and that this owl may have been called the Shivering Owl, because it shivers. It certainly shivers, that it screeches may be a question for dispute. This peculiarity is one of the early things to be observed in the life of these nestlings; but the shivering does not become very pronounced until the bird is two days old, and continues until it is about two weeks old, at which time the young owl is well covered with thick down: therefore it seems quite possible that it shivers because it is cold. To this argument two facts lend weight, one is that the trembling diminishes gradually as the down grows thicker, and the other that the quivering bird sitting on the palm of one hand becomes quiet when well covered by the other hand.

The power of locomotion seems to be very good in young owlets; when one was but a day old it was placed on the floor of the blind where it moved the distance of a foot or more in a very few minutes. As soon as their eyes were fairly open they moved about freely in the nest. On May 3 the oldest owlets kept their eyes open a narrow crack, their lids were red giving the appearance of sore eyes: five days later they looked around as if "taking notice," this was the day upon which they first showed fear. When about three weeks old their manner of winking became a noticeable feature; catching

a glimpse through the peep-hole of a human eye a youngster would stare as if lost in the deepest study, then close one eye in a deliberate long-drawn wink that was exceedingly droll, or in the same manner it would wink both eyes simultaneously which was not so amusing.

The light in the nest was about as bright as that in an ordinary room, that which entered through the three windows of the blind was greater than usually illumines house rooms. In neither place did the young show signs that the light was too powerful for their eyes. Only when carried into bright sunshine was there a blinking: most human eyes are similarly affected. The male Screech Owl often spent nearly the entire day with his head out of his box, in the full rays of the sun, his actions indicating that he quickly noted any unwonted movements. Unfortunately the hole of the female's box could be seen from exposed positions mainly, and not from the house. Twice only was she seen with her head out of her box, then I was more than a hundred yards away in the back yard of a neighbor, as I advanced toward the street into plainer view. she quickly scuttled out of sight. Several times during the daytime she accidentally was frightened from her nest, the directness with which she flew to a tree, then into the box of her mate showed no indications of poor vision. By day both she and her young were able to discover an observing eye when the peep-hole was closed all but the merest crack. A flash-light lantern was used nightly, its rays entering by one peep-hole while observations were made through the other; sometimes the lantern was introduced through the hand-hole and flashed within an inch or two of the mother's face. None of this appeared to excite fear, the light was utterly disregarded, but she at once would commence to sway and to peer at the human eye she detected in the gloom beyond. These things lead me to think that the eyes of this species are similar to those of the cat, capable of seeing well by day, also at night.

Except when disturbed the mother at all times appeared stupid, yet the young were as alert as most nestlings during the day. Until the shivering period was past they sought the warmth found under the mother's wings; after this as one would naturally suspect, they as do other young birds, continued to sleep much, standing in a bunch with their heads pressed together; they preened themselves but not so much as do some nestlings; fre-

quently they yawned, monstrous, big-mouthed yawns. Stretching was the favorite exercise, during it the birds seemed to be made of india-rubber. On May 16 the height to which one stretched itself was seven inches by actual measurement. Sometimes they ate if food was before them, and always they exhibited a wide-awake interest in any eye that they espied looking at them through a peep-hole, even when the mother paid no attention to it. They would stare quietly at it for a time, then stare while their bodies swayed from side to side: this swinging motion would slowly come to an end, the performers would grow drowsy, two pressing against each other would lean their heads together and drop off to sleep. This pose was a favorite one a few years ago among photographers of human subjects. It may be needless to say that, it is much more artistic and charming when assumed by owls.

During their nest life but three varieties of cries were heard from them, the first, beginning as soon as they were out of the shell, had some resemblance to the peep of a chicken, and was uttered by them when out from under the mother's wings, seemingly a cry for shelter and for food: this ceased when they were about three weeks old. At this age a second cry was heard for the first time, which had a decidedly squeaking sound and was made when they were squabbling for the warmest place in the family circle. The remaining cry, a sort of chatter, appeared to be the tone for a dinner discussion, friendly enough in quality, for they were never seen to quarrel at meals. Besides these there was the snapping of the bill which commenced the day they began to show fear, and a hissing sound made when they were frightened.

The owlets were marked with different colored strings, and were weighed every evening about twilight, when an hour or more was spent in the weighing and in observations of them outside the nest. While removing them from the box a struggle generally occurred with signs of fear and the use of claws defensively, but not until three days before they left the nest did one make an offensive clawing attack upon my hand. While out of the nest aside from an occasional snapping of the bill they seldom showed signs of fight or fear, but allowed themselves to be patted and handled freely. Once one of them having exercised until tired turned its head to one side, laid it flat on the palm of my hand and went to

sleep. For inspection they were placed on a stool over whose edges they frequently walked, but often saved themselves from falling by catching hold upon the edge with their hooked bills. Sometimes they arranged themselves along the edge of the stool, looking solemn and wise, then one would begin to sway, the others would join in the exercise, which was continued with the precision of a class in calisthenics. As soon as they could climb by using claws and bill a three-cornered shelf was the favorite perch for one of them, there immovably as a stuffed owl it stood until forcibly displaced.

The female Screech Owl calls to mind the village loafer who in describing his life occupation said that "sometimes he sat and thought, and sometimes he jest sot." In the case of this owl she "jest sot." During one of the long vigils — the one that lasted until half past two in the morning — there was a noise three or four times as of the eggs rattling against each other, and once she snapped her bill. This was all. Verily, a sitting Screech Owl is not a lively companion for the still watches of the night. After incubation began on only four occasions was the nest seen without her, two of these have been mentioned, the evenings on which she was driven out for the purpose of marking and weighing the eggs: on the other two she left voluntarily as the blind door was opened.

Her disposition was unreliable and created much trepidation and uncertainty as to the limit of inspection she would bear. One illustration of this was given on March 28 when she left her nest while her visitors were at the distance of six rods or more from the blind; again on May 1 there was another instance. Up to this time she had suffered the removal of her young from under her both in the daytime and in the evening, then it was the tossing of a common shrew into the nest that scared her out. This was at one o'clock in the afternoon, three hours later her young were stiffening with cold, but warmth furnished by the flame of a lamp and by the sun saved the nestling's lives.

The mother expressed disapproval of the examination of her nest by the snapping of her bill, the laying back of her ear-tufts, and the glare of her eyes, but never did she offer to bite nor to claw the hand. Once her leg, was seized by mistake for a nestling, and she uttered a cry of distress heard at no other time. Quietly

she sat brooding her young for the first ten or twelve days after which the order was reversed and they stood upon her. Day by day she shrunk more and more from view until only an ear-tuft could be seen, then came a day when nothing could be seen of her, but she did not desert the nestlings in the daytime until May 26, three days before they left the nest. Those days she probably spent in the box of her mate where she was seen to take refuge when frightened from her nest.

It was impossible to learn how many of the days the male owl occupied his box, but from the date of the first egg to that upon which the young left the nest, sixty-four days, he was seen there on twenty-seven of them. Sometimes he did not show himself until evening: sometimes an unusual noise about the blind brought him into view. On other days he kept his head out of the hole almost all the time, going to sleep if all were quiet in the blind. When nest duties were not pressing his mate was seen to thrust her head out of her nest, as the holes of the two boxes faced each other many a Romeo and Juliet scene of an owlish character may have been enacted, and winks were exchanged beyond doubt. A few days before they left the nest the owlets began to sit in the hole and there seemed to be little time day or night when the hole was not occupied by one of them.

The male Screech Owl appears to have been the general purveyor for the family. In the first fortnight of incubation there were nine mornings when an excess of food lay beside his mate; of this she rarely ate during the day, but there were times when she did so. On the remaining days of incubation she had food beside her twice, but as soon as the eggs commenced to hatch there was a superabundance provided. An example of this was furnished on April 29 when there lay in store four meadow mice weighing about two-fifths of a pound altogether. This excessive provision lasted only a few days, the supply decreased daily, and none was seen after May 15. Nine o'clock, half past nine, and ten o'clock were hours upon which he was known to have brought food to the nest, eight o'clock in the evening being the earliest time. Twenty minutes before that hour he uttered his first call, after which were two other calls before his claws were heard on the roof overhead followed by continued calling; a sound like the mewing of young kittens was judged to be the answering voice of his mate.

On a few of their earliest days the owlets were weighed in the morning and at night, their increase in weight showing that they were well fed during the day. When the bird from the fourth egg was just hatched, its down being still wet, it was lifted from the nest. It opened its mouth for food and cried; at that time and afterward it was noticed that the young did not open wide their mouths nor throw their heads backward as do the nestlings into whose throats the food is poked, but while begging for food they thrust at the hand with a nuzzling motion very similar to that made by young kittens when searching for dinner. Bits of flesh clipped from meadow mice in store, that were placed in the mouth of a nestling, were swallowed with some difficulty and no apparent relish. Their beaks were stained upon the outside with bloody matter, and as they grew older they would nibble at the mother's bill as if teasing for food. All these things led to a belief that in their earlier days they were fed predigested or partially predigested food, which they pulled from the beak of the mother. After May 10 on only three mornings was any food found in the nest; from that date the mother sat with her bill in one corner of the nest, while the nestlings stood on her back, her wings and her tail. It was surmised that she sought this position to free herself from the teasing of her young. On the tenth an owlet was seen for the first time pulling at food (the body of a frog), as if eating it. The next morning during observations the mother lifted her head from the corner and appeared to eject something from her mouth; at once the owlets scrambled to the spot and seemed to eat for a few minutes. At that time a chance to view the nest from the top would have been most fortunate.

Although Father Owl failed on forty-one out of sixty-four days of nest life to provide a store of food for daytime use it does not follow that the nest was unserved. The food given to the sitting Screech Owl, and later to her young, consisted of moles, house mice, one white-footed mouse, two jumping mice, pocket gophers, ground squirrels, beef both raw and cooked, canned salmon, English Sparrows' eggs and their young, all of which was eaten or at least it disappeared. On May 13 the nestlings were seen eating eggs of the English Sparrow: two days later the oldest owlet was seen to eat portions of a gopher leg; holding the meat with one foot it

tore off and ate a mouthful, then rested four or five minutes before eating again. On May 28 the youngest fledgling was watched while it ate the front leg of a gopher. Twice it tried to swallow the piece and was obliged to disgorge and tear off bits of the flesh, on the third trial the leg disappeared bone and all, the whole performance occupying upwards of twenty minutes. That fore leg had not been weighed, but its mate remained and was found to weigh 203 grains: the weight of the owlet that night was 1904 grains. To use a well worn illustration it was equivalent to a boy weighing ninety-five pounds eating at one meal a ten pound leg of mutton. The young Owls could not be induced to eat when outside of their nest. One evening while in the house they would not touch young English Sparrows offered them, but ate them the moment they were returned to the nest.

Pellets ejected by the young were found for the first time on May 10; it may be well to note that this was the first date upon which they were seen eating the food that lay in the nest. A pellet disgorged on May 27 weighed sixty-two grains, which was one-thirtieth of the weight of the bird that ejected it. No pellets from the mother's throat were found in the nest, yet once she was known to have remained there continuously for twenty-one hours. She seemed to have well defined ideas of house-keeping. Not always did the food dropped into the nest by her mate fall close to the wall beneath the hole, and the contributions to her larder that were pushed in through a peep-hole never fell there, but soon all was piled up in orderly shape against the north wall beneath the entrance hole, which seemed to be the normal arrangement until she was disturbed by the frequent opening of the hand-hole; she then changed her location to the north side of the nest and piled the game on the south side. One day the temperature rose to midsummer heat, and some of the excessive supply of food became exceedingly gamy and over-ripe. Discontinuance of the nest study was threatened, but in the night there was a clearing out of objectionable matter and such conditions did not recur. Nor did the plumage of the young become soiled. Their natural position in the nest seems to have been a standing one, this taken with the fact that the nest was made above a deep bed of sawdust may account for this cleanliness.

After the very sudden and unexpected going out of the mother bird on the first day of May she was not seen to leave the nest until the seventh evening of the month: from that date onward for a week she sometimes staid in the nest until part of the weighing was done, or if out, she came in and remained with her nestlings. On the 17th of May she did not go out when the owlets were removed from the nest although two of us were in the blind engaged in conversation, but she uttered a mournful, tremulous cry two or three times. After that in the evening she left the nest when the blind was visited. At times one parent would come to the windows, which at night were covered with heavy pasteboard shades, where it would cling calling to the young that were out of their nest. On a few nights a sound was made that resembled the chattering of human teeth. After the 18th of the month the expression of displeasure, displayed by the parents, grew more emphatic evening after evening. At first the demonstrations, made at a distance, were limited to snappings of the bill and a noise resembling the yelp of a dog: gradually feigned attacks on the person of the enemy increased in number and came nearer. The bird from some perch in a tree would describe an elliptical path in the air, coming with savage snappings until overhead and about ten feet up, it would utter one weird *eh-hue* cry before it swung back to its tree. In this long-drawn *eh-hue* note it was not so much what the owl said as the tone of voice in which it was said that engendered *cutis anserina* popularly known as "goose-flesh."

It was a keen disappointment that there were not more opportunities for the study of the food habits of the Screech Owls. In the forty pieces of game found in the nest there were eight birds, three frogs, one common shrew, and twenty-eight mice: the last named were chiefly meadow mice with two or three house mice. Enough of the meadow mice were weighed to ascertain their average weight to be upward of 600 grains. After leaving their nest on May 29, the oldest ones being thirty-two days old, the owlets were caught and kept in captivity several days. Their food was weighed and it was learned that when fed to satiety each one consumed meat equal in weight to one meadow mouse. This estimate may fairly indicate that the forty pieces mentioned were nearly one-eighth of the amount eaten by the entire family during

the next season. On this basis of reckoning sixty-four birds fell victims to these night terrors; as but one of the eight birds seen was an English Sparrow little credit belongs to the owls on that score; four were Song Sparrows and three Juncos. After the Juncos had passed northward there were numerous reddish feathers in the nest indicating that Swamp Sparrows often appeared on the bill of fare.

The very large proportion of Song Sparrows and Juncos slain invites investigation. During some part of the nest period fully thirty species of small birds were present, of which Goldfinches, Vesper, Savannah, White-throated, Tree, Chipping, Field and Swamp Sparrows were as numerous at times as the Song Sparrows, or more plentiful, for in time all Song Sparrows disappeared. In three places on our grounds this species had been accustomed to nest, but as the days went by one voice after another was missed from the bird chorus. The fact that Juncos and Song Sparrows more frequently than their numerous congeners fell victims to these rapacious birds, suggests the thought that probably they flush at night more readily. Usually the head, wings and tail of a bird were torn off before it was dropped into the nest, only once was a whole one brought in. At times the food was marked; from this it was made certain that the body of a Song Sparrow lay untouched for two days, thereby showing that a mouse diet was preferred.

Out of forty pieces of game eight were birds or twenty per cent of the whole. Dr. Fisher's investigation of the food habits of this species shows that of 212 Screech Owls whose stomachs contained food 38 of them had eaten birds or eighteen per cent of the whole. This indicates that our owls were but two per cent worse than the species in general, yet their ravages were so great that it was decided if we desired a little bird paradise where all good birds were welcome through the summer time there Screech Owls could not be encouraged to remain, therefore the captive owlets were sent to a neighboring village, a pair of them to two invalid little boys in a hospital, the others to a friend in the same place. Soon all of them gained their freedom and with it the chance to prey upon all the little birds about them.

*Weight of Owls, 1910.*

| Days in the lives of the Screech Owls. | Egg April 13 Hatching | No. 1 248 grs. | No. 2 250 grs. | No. 3 236 grs. 199 " | No. 3 219 grs. 193 " | Aggregate Weight | Daily Average |
|---|---|---|---|---|---|---|---|
| | 1 | 180 | 179 | | | | |
| | 2 | 221 | 218 | 174 | | | |
| | 3 | 281 | 267 | 198 | 156 | 912 | 225 |
| | 4 | 347 | 334 | 244 | 168 | 1093 | 273 |
| | 5 | 422 | 410 | 296 | 186 | 1314 | 328 |
| | 6 | 608 | 579 | 418 | 256 | 1861 | 465 |
| | 7 | 705 | 670 | 552 | 346 | 2273 | 568 |
| | 8 | 824 | 815 | 646 | 436 | 2721 | 680 |
| | 9 | 994 | 920 | 820 | | | |
| | 10 | 1006 | 1031 | 841 | 730 | 3608 | 902 |
| | 11 | 1284 | 1077 | 1030 | 795 | 4186 | 1046 |
| | 12 | 1184 | 1121 | 987 | 840 | 4132 | 1033 |
| | 13 | 1421 | 1405 | 1190 | 1131 | 5147 | 1286 |
| | 14 | 1414 | 1451 | 1416 | 1196 | 5477 | 1369 |
| | 15 | 1695 | 1620 | 1531 | 1323 | 6169 | 1542 |
| | 16 | 1573 | 1521 | 1445 | 1300 | 5839 | 1459 |
| | 17 | 1682 | 1560 | 1431 | 1415 | 6088 | 1522 |
| | 18 | 1714 | 1556 | 1505 | 1554 | 6329 | 1582 |
| | 19 | 1917 | 1742 | 1721 | 1695 | 7075 | 1768 |
| | 20 | 1870 | 1861 | 1844 | 1708 | 7283 | 1820 |
| | 21 | 1930 | 1770 | 1746 | 1654 | 7100 | 1775 |
| | 22 | 1954 | 1756 | 1740 | 1731 | 7181 | 1795 |
| | 23 | 2010 | 1873 | 1706 | 1849 | 7438 | 1857 |
| | 24 | 2105 | 1932 | 1856 | 1961 | 7854 | 1963 |
| | 25 | 2301 | 2179 | 1980 | 2088 | 8548 | 2137 |
| | 26 | 2395 | 1959 | 1948 | 2110 | 8412 | 2103 |
| | 27 | 2119 | 1945 | 1841 | 2034 | 7939 | 1984 |
| | 28 | Not weighed | | | | | |
| | 29 | 2295 | 2040 | 1950 | 2180 | 8465 | 2116 |
| | 30 | 2050 | 1789 | 1771 | 1940 | 7490 | 1872 |
| | 31 | 2088 | 1835 | 1893 | 1895 | 7711 | 1928 |
| | 32 | 2128 | 1970 | 1872 | 1904 | 7874 | 1968 |
| | 33 | 2120 | 2043 | 1912 | 1860 | 7935 | 1983 |
| | 34 | 2185 | 2109 | 1910 | 1964 | 8168 | 2042 |
| | 35 | 2360 | | | 2145 | | |
| | 36 | 2645 | | | 2225 | | |
| | 37 | 2455 | | | 2250 | | |
| | | Not weighed for 9 days | | | | | |
| | 47 | 2708 | | | 2471 | | |

# NOTES EXTENDING THE RANGE OF CERTAIN BIRDS ON THE PACIFIC SLOPE.

BY J. H. BOWLES.

AFTER a careful study of the new A. O. U. Check-List it seems to me probable that the following notes may be of interest to the readers of 'The Auk.'

All observations in the State of Washington were made in the western part of the State, mostly near Tacoma and Seattle in the vicinity of Puget Sound. The northeastern part of the State is represented by specimens from the vicinity of Newport, a small town near the Idaho border, which, together with those taken near Lake Chelan, make up the greater part of the records mentioned for the east side of the Cascade Mountains. A number of the Washington records appeared in the 'Birds of Washington,' by Dawson and Bowles.

The Santa Barbara, Cal., records, unless otherwise stated, were all based on specimens personally collected by myself. All specimens, unless otherwise stated, were prepared by myself and the identification made positive through the kindness of Dr. A. K. Fisher and Mr. H. C. Oberholser.

In my Santa Barbara work, I wish also to acknowledge here the unremitting efforts of Mr. Watson Snyder and Mr. E. S. Spaulding, who have spared no pains in locating new birds.

MARBLED MURRELET (*Brachyramphus marmoratus*).— Given in the Check-List as breeding "south to Vancouver Island."

These birds are regular residents on Puget Sound throughout the year, though less abundant in summer than in winter. In the waters surrounding Fox Island, a small island situated in the sound about ten miles from Tacoma, three or four to a dozen of these murrelets may be found any day during the summer. Although I have never heard of a nest being found, the additional fact that immature birds appear with the old ones during June makes it appear probable that they breed in the vicinity. From all that I can learn this is about as good evidence as we have concerning most of the breeding localities of this species.

PACIFIC EIDER (*Somateria v-nigra*).— In 'The Auk' for April, 1906, Vol. XXIII, I recorded the occurrence of these birds in Puget Sound, as seen by myself, during January and February of that year.

My attention was first drawn to them by a local gunner who asked me to name a duck he had shot that was, "a good deal like a hen mallard, only about twice as big and with a very stout bill." He had secured it on the Nisqually Flats, near Tacoma, but unfortunately had devoted it to the pot. I at once visited the locality and was fortunate enough to see two female eiders feeding in a muddy slough. They allowed me a prolonged and excellent view, but flew too soon for a successful shot. A few days later, while crossing in front of these flats in a small steamer, the boat passed a magnificent male of this species, which allowed an approach of not more than fifty yards before diving.

Although no skins were secured, there seems no possible doubt as to identification. I believe this to be the southernmost record for these birds, and it must be most unusual, since I never saw or heard of any others during fourteen years' residence in the State.

WHITE-WINGED SCOTER (*Oidemia deglandi*).— Monterey, California, is the southern summer limit given in the Check-list for this species on the Pacific coast.

During the past summer of 1910 both Mr. Bradford Torrey and myself noted daily a flock of some fifteen or twenty of these birds close to the beach at Santa Barbara. Mr. Torrey says he saw nothing of them in the summer of 1909.

BITTERN (*Botaurus lentiginosus*).— Breeding records for this bird in the State of Washington are rare, if, indeed, any have been yet published. The only instance that has come to my knowledge is kindly given me by Mr. D. E. Brown, of South Tacoma, Wash., who took a set of four eggs from Douglas County, Wash. The nest was placed on the ground in tall grass a short distance from a pond, the location being a large field instead of the customary swampy ground. The date was June 3, 1908.

NIGHT HERON (*Nycticorax nycticorax nævius*).— Northern Oregon is given in the Check-List as the northern breeding limit for these birds. During early June of 1906 Mr. Dawson and I found these birds numerous on a chain of small lakes in Douglas

County, Wash. There was practically no doubt of a nesting ground in the vicinity, but unfortunately we were unable to locate it.

LITTLE BROWN CRANE (*Grus canadensis*).— Given in the Check-List as "casual west to California."

There is little doubt in my mind that a majority of the cranes seen in Washington west of the Cascades are of this species. I collected an adult male near Tacoma on October 10, 1909. I have no positive record for *Grus mexicana* excepting east of the mountains.

WILSON'S PHALAROPE (*Steganopus tricolor*).— I believe this Phalarope has been unusually numerous in the vicinity of Santa Barbara during the past summer of 1910.

July 22 is my first record, when two were together down on the flats, one evidently adult, the other probably young of the year.

On August 4 I saw three others, all in fall plumage, and on September 8 two more, of which I collected one. Between the dates given I saw frequently what were probably the same birds, but those given on the above date were most probably different individuals. Mr. Torrey saw these birds as well, and also has a record of a male and female seen April 30, 1909.

PECTORAL SANDPIPER (*Pisobia maculata*).— Given in the Check-List as, "In migration very rare on Pacific coast south of British Columbia, except in Lower California."

In the Puget Sound district of Washington this sandpiper is an irregular, but hardly a rare, spring and fall migrant. Some seasons it is almost or quite absent, while in others it is fairly common.

Hunting the Wilson's Snipe is one of my favorite sports, which may very possibly account for my seeing more of these sandpipers than the average observer. They frequent the same localities as the snipe, and I have several times seen as many as six or eight at one time scattered over an acre or two of wet meadow land. Incidentally they are so tame as to let a good dog "point" them repeatedly, much to the detriment of the sportsman's temper. I killed only a couple of specimens for my collection, but a hundred individuals would be an exceedingly low estimate of the number I saw during my fourteen years' residence in the State.

The experience of Mr. J. M. Edson at Bellingham, Wash., has been very similar to my own. He writes me: "Concerning the

Pectoral Sandpipers, I may say that I have taken at least eight specimens of this species on various dates between and including September 2, 1899, and October 10, 1908. On one date I saw as many as thirty or forty, and on another I noted about two dozen. Specimens were secured each time."

I have been here at Santa Barbara only during the past year (1910), but I noted this species once on April 14, for the spring migration, and twice in the fall, September 8 and 9. The last two dates may possibly represent the same bird, as I collected it and have seen no others since. Mr. Torrey also reports these birds for 1909 (see Condor, Jan.–Feb., 1910). On September 17 he saw one bird, two on the following day, and three on the 20th, all in the same place and within the city limits of Santa Barbara.

KILLDEER (*Oxyechus vociferus*).— For the Pacific coast the Check-List does not give this bird as wintering north of California. It would perhaps be scarcely correct to go on record as stating that this species is a regular winter resident on Puget Sound, but in the vicinity of Tacoma it is seen so frequently at that season as to attract scarcely more than passing notice. I have seen them during all the winter months, although they cannot be found with any certainty. Beyond a doubt many do winter, mostly in good sized flocks that pass their time on one or another of the many different marshes and mudflats.

SNOWY PLOVER (*Ægialitis nivosa*).— The Check-List gives Oregon as the northern limit for this species.

My brother, C. W. Bowles, took a specimen at Grays Harbor, Wash., which is now in our collection. The date was September 3, 1899, the bird being the only one of its kind noticed.

MOUNTAIN QUAIL (*Oreortyx picta picta*).— Given in the Check-List as occurring "from southwestern Washington south," etc. In the vicinity of Tacoma and throughout most of the Puget Sound country this quail is an abundant resident. Owing to different previous importations of both forms, occasional examples showing traces of *O. p. plumifera* are found, but *picta* is the typical form.

SPARROW HAWK (*Falco sparverius sparverius*).— Range given in the Check-List as "North America east of the Rocky Mountains."

There seems no reasonable doubt that this is the resident form

in northwestern Washington. Specimens personally collected by myself near Tacoma several years ago were identified by Mr. Joseph Grinnell as typical *sparverius*. Also a specimen collected by Mr. D. E. Brown on September 11, 1910, near his home at South Tacoma, was identified by Mr. Oberholser as true *F. s. sparverius*. These birds are common summer residents, but not often seen during the winter months. I have never seen any birds in western Washington that I believe could be referable to *F. s. phalæna*, and doubt if this subspecies often drifts over onto the west side of the Cascade Mountains.

SAW-WHET OWL (*Cryptoglaux acadica acadica*).—Not recorded in the Check-List as breeding in any of the Pacific coast States.

Mr. D. E. Brown took a set of four eggs of this owl, together with the parent bird, in the vicinity of North Yakima, Wash., on April 12, 1909. This was in an old nest of the Red-shafted Flicker (*Colaptes cafer collaris*), Mr. Brown having taken a set of the rightful owner from the same hole in 1908.

RICHARDSON'S OWL (*Cryptoglaux funerea richardsoni*).—Records of this owl are sufficiently rare in the United States to be of interest. Mr. D. E. Brown took a specimen near Bellingham, Wash., on January 17, 1905.

ASH-THROATED FLYCATCHER (*Myiarchus cinerascens cinerascens*).—Not recorded as breeding north of southern Washington. On May 23, 1903, on the outskirts of North Yakima, Yakima County, Wash., I watched one of these flycatchers building a nest in an abandoned hole of the Red-shafted Flicker. Being unable to wait for eggs, I examined the cavity and found that the flycatchers must have used the same site on the previous year, as an old and heavy mass of cow hair made evident.

These birds are exceedingly rare in Washington on the west side of the Cascades, the only record I have being of a pair I saw at Tacoma on May 21, 1905. These did not remain to breed.

MAGPIE (*Pica pica hudsonia*).—Not recorded as occurring west of the Cascades. The Magpie is a regular and not uncommon winter visitor to the tide flats and prairies in the vicinity of Tacoma. Occasionally I have seen as many as fifteen or twenty in a flock, but usually not more than half a dozen are seen together. Beyond a doubt they are voyagers over the mountains from their summer home on the east side of the Cascades where they are very plentiful.

LARGE-BILLED SPARROW (*Passerculus rostratus rostratus*). Given in the Check-List as wintering "from San Pedro southward along both coasts of Lower California," etc.

During the winters of 1909–10 and 1910–11 these sparrows were common on the dock at Santa Barbara, where they were seen regularly by both Mr. Bradford Torrey and myself. They arrive about the middle of September and leave us early in March, the attraction here being undoubtedly the grain that is spilled when the boats unload.

NUTTALL'S SPARROW (*Zonotrichia leucophrys nuttalli*).— Recorded as breeding south as far as San Louis Obispo County, Cal.

On May 21, 1910, while on a collecting trip near Santa Barbara with Mr. E. S. Spaulding of that city, he called my attention to two pairs of these sparrows. One pair was feeding some bob-tailed young, evidently newly out of the nest, while the second pair showed every evidence of having a nest, although we failed to locate it.

Incidentally, a winter record of this sparrow from Washington may be of interest. On January 22, 1908, I collected near Tacoma a fine adult male in beautiful plumage.

GOLDEN-CROWNED SPARROW (*Zonotrichia coronata*).— While walking through a large field of weeds near Tacoma on December 16, 1907, I saw two immature birds of this species and collected one of them. Returning on January 15, 1908, I found the other bird was still there, where he remained until spring. These are my only winter records for this species.

SLATE-COLORED JUNCO (*Junco hyemalis hyemalis*).— Not recorded from the State of Washington. I collected a male of this species at Tacoma on February 4, 1909, and saw one other. They were feeding in the snow with a company of Shufeldt's Juncos (*J. h. connectens*), their plainer coloring at once distinguishing them among their western cousins.

SOOTY SONG SPARROW (*Melospiza melodia rufina*).— At Takilma, Josephine Co., Oregon, my brother, Mr. C. W. Bowles, collected the nest and four eggs of a Song Sparrow, but was unable to secure either of the parents. Returning to the same locality a few days later he succeeded in collecting a bird that was identified by Mr. Oberholser as most closely corresponding to *M. m. rufina*.

This is, of course, not sufficient proof for a breeding record, but it strongly indicates the possibility of a summer resident.

VALDEZ FOX SPARROW (*Passerella iliaca sinuosa*).— This new subspecies was recently described by Mr. Jos. Grinnell from specimens taken on the Alexander Alaska Expedition of 1908. The type, a male, was taken by Mr. J. Dixon, on August 26, 1908, at Drier Bay, Knight Island, Prince William Sound, Alaska.

I first saw this subspecies here at Santa Barbara on November 13, 1910, when I collected a female. Since then I have seen them here more or less commonly up to date of writing, December 31. I have taken other specimens on the following dates: a male November 18 and 23, and December 24. It is rather interesting to note that I saw none of these sparrows during the winter of 1909–10.

STEPHENS'S FOX SPARROW (*Passerella iliaca stephensi*).— On August 30, 1910, Mr. E. S. Spaulding, of Santa Barbara, secured one of these sparrows for me at Little Pine, one of the higher peaks in the hills of Santa Barbara County, the elevation being nearly 3000 feet. Mr. Spaulding reported them as being numerous but it was, of course, too late a date to ascertain if they nested in the vicinity. This, I believe, makes a farthest north record for this subspecies.

It may, perhaps, be of interest to state that Mr. Spaulding saw the California Pine Grosbeak (*Pinicola enucleator californica*) in the same vicinity where he took the *stephensi*.

FOX SPARROW (*Passerella iliaca iliaca*).— Although the title of this article does not, strictly speaking, apply to this case, another record of this sparrow in California may possibly be of some interest. On January 1, 1911, I collected a handsome male of this species here at Santa Barbara. It was in a mixed company of Golden-crowned Sparrows (*Zonotrichia coronata*) and Valdez Fox Sparrows (*Passerella iliaca sinuosa*), from which it was at once distinguishable on account of its much brighter plumage.

ANTHONY'S TOWHEE (*Pipilo crissalis senicula*).— Given in the Check-List as occurring "south of the San Bernadino Mountains and on the Pacific side of Lower California south," etc.

A towhee that I collected here at Santa Barbara on March 9, 1910, one of a pair, is identified as *senicula*. This I believe to be our breeding form. It seemed unnecessary to collect others

during the breeding season as the very close examination that the other nesting birds permitted showed not the slightest variation from the specimen in hand.

During the coming winter I expect to collect others in order to ascertain if this is not the resident form, and whether or not *P. c. crissalis* occurs here at all.

WESTERN TANAGER (*Piranga ludoviciana*).— Recorded as nesting in southern California only in the high mountains.

Although the elevations where I have seen them at Santa Barbara were at most only 600 feet, these tanagers might be found at any time during the summer of 1910 in the little cañons just outside of town. They were undoubtedly breeding, although lack of time prevented my locating a nest in the dense live-oaks which they frequented.

PURPLE MARTIN (*Progne subis subis*).— Given in the Check-List, "North and South America, except Pacific coast region."

The martins found in the vicinity of Tacoma and Seattle are all unquestionably of this form. I felt convinced of it when I first saw the living birds, and a female taken by myself at Tacoma was identified as typical *subis*. They are rather common summer residents, breeding entirely in buildings in the business portions of the cities, so far as I have seen. It seems more than probable that this is the form to be found throughout northwestern Washington, but just how much further south is still uncertain.

RED-EYED VIREO (*Vireosylva olivacea*).— Not recorded as occurring on the west side of the Cascades.

Although a rather common summer resident in eastern Washington, it is only during the past few years that I have noticed this vireo west of the Cascades. I have recorded them once during migration in the vicinity of Tacoma, but the only locality where I have found them regularly is around the outskirts of Seattle. Here for the last few years it has been a not uncommon summer resident. I have seen several nests containing young or eggs, all of which were found by Miss Jennie V. Getty, near Kirkland, a suburb of Seattle.

ORANGE-CROWNED WARBLER (*Vermivora celata celata*).— Not recorded in the Check-List from the Pacific States.

It seems possible that this warbler is much more commonly

distributed along the Pacific coast than is generally supposed. I collected a specimen at Tacoma on May 8, 1907, that was identified by Mr. Oberholser. Concerning this bird my notes say: "I saw eight of them during the day." Before and since that date I have seen a few birds every season — spring and fall — that I am positive were this species, their duller coloration making them almost conspicuous among the brighter *V. c. lutescens*.

LUTESCENT WARBLER (*Vermivora celata lutescens*).— Recorded as breeding in southern California only in the mountains.

This warbler is a rather abundant summer resident at Santa Barbara, where I have found the nest only two miles back from the ocean, the elevation being less than 400 feet. It is less numerous during the winter months.

SIERRA CREEPER (*Certhia familiaris zelotes*). — Not recorded in the Check-List from north of Oregon.

This subspecies is a not uncommon summer resident in northern Washington east of the Cascades, a breeding specimen taken by Mr. Dawson and myself being identified by Mr. Oberholser. It is to be found in the vicinity of Lake Chelan at the mountain end, and in the northeastern part of the State along the Pend d'Oreille River.

CREEPER (*Certhia familiaris*, subsp.). — The Check-List does not mention any form of creeper as occurring on the coast of southern California.

For the present record I am indebted to Mr. Watson Snyder, who located one of these birds for me here at Santa Barbara, and which we collected on January 5, 1911.

Mr. Oberholser informs me that the specimen is not precisely referable to any of the specimens in the National Museum, although more closely approaching the Sierra Creeper (*Certhia familiaris zelotes*) than any other. It was taken in a clump of live-oaks close to the town, at an altitude of about 700 feet.

SLENDER-BILLED NUTHATCH (*Sitta carolinensis aculeata*). — Recorded in the Check-List only in "Pacific coast region." *S. c. nelsoni* is the form given in the Check-List as occurring from the eastern base of the Cascades eastward. This is very possibly the case as regards central and southern Washington, but I do not believe it to apply to the northern part of the State. In the

region of the Pend d'Oreille River, in northeastern Washington, we found *aculeata* to be the summer resident, a breeding specimen taken by Mr. Dawson and myself being identified as such by Mr. Oberholser. It therefore seems fair to presume that this is the form occupying the entire northern border of the State, as well as the Pacific coast region.

CHICKADEE (*Penthestes atricapillus atricapillus*). — A breeding specimen, taken by Mr. Dawson and myself near Newport, Wash., was identified as more nearly approaching this form than any other. They are common in that locality where, it may be well to add, we saw nothing that we thought to be the Long-tailed Chickadee (*P. a. septentrionalis*).

CALIFORNIA BUSH-TIT (*Psaltriparus minimus californicus*). — Given in the Check-List as not occurring in California on the "coast strip."

This subspecies would appear to be the breeding form of Bush-Tit found in the vicinity of Santa Barbara, since one of a pair taken by me on March 10, 1910, was identified as *P. m. californicus*. It is quite probable that *P. m. minimus* occurs here during migrations; in fact, I am positive that I have seen much darker examples during the winter.

TOWNSEND'S SOLITAIRE (*Myadestes townsendi*). — What I believe to be the most westerly breeding record for this species was made just outside the city limits of Seattle, Wash., by Mr. D. E. Brown. The locality is, of course, not at all mountainous. The nest was placed in a slight cavity in a cut-bank, and contained newly hatched young on June 3, 1907.

WREN-TIT (*Chamæa fasciata fasciata*). — Given in the Check-List as occurring as far south as the "southern shores of San Francisco Bay and adjacent Santa Clara Valley."

On February 18, 1910, I collected here at Santa Barbara a female of what appeared to me to be an unusual *Chamæa* for this vicinity. Mr. Oberholser recently identified it for me as typical *C. f. fasciata*, and I am positive that I have seen others here of the same type.

Ornithologists of much greater experience than myself have given the Pallid Wren-Tit (*C. f. henshawi*) as the breeding form for this locality, so it is possible that this family of birds may be migratory to a considerably greater extent than is generally supposed.

# CONCEALING COLORATION AGAIN.

BY THOMAS BARBOUR AND JOHN C. PHILLIPS.

MR. ABBOT H. THAYER'S book on 'Concealing Coloration,' and his various contributions to the subject which have appeared published in scattered articles, have awakened an interest in this fascinating field of observation which has never been known before this time. If Mr. Thayer's notices had been confined to studies of countershading, which he has so excellently demonstrated, and of similar phenomena, we should have been glad to subscribe most heartily to the immense importance of what he has shown us. Mr. Thayer, however, along with most other enthusiasts in a field with which they can be but partially familiar, has gone too far and claimed too much.

In his book we have the view elaborated that all organisms, or nearly all, are adapted exclusively as far as external features go to concealment in the environment in which they are found. Mr. Thayer does not even touch on the evolution of color and patterns. He simply says (page 36), "We ourselves attribute all such work (meaning here color patterns and normal backgrounds) to natural selection, pure, simple, and omnipotent."

Of the several notices which have appeared reviewing Mr. Thayer's work, only two have been in any way critical. Messrs. Dewar and Finn, on page 184 of their book, 'The Making of Species,' comment at length, saying "even as Wallace out-Darwins Darwin, so does Mr. Abbot Thayer....out-Wallace Wallace. That gentleman seems to be of opinion that *all* animals are cryptically, or, as he calls it, concealingly or obliteratively colored. Even those schemes of color which have hitherto been called conspicuous are, he asserts, 'purely and potently concealing' when looked at properly, that is to say, with the eye of an artist." They continue, after taking up one or two of Thayer's special cases: "There is something in this theory of obliterative coloration. Anyone can see, by paying a visit to the South Kensington Museum, that an animal which is of a lighter coloration below than above is less conspicuous in a poor light than it would be were it uniformly

colored. . . . To this extent has Mr. Thayer made a valuable contribution to zoölogical science. But when he informs us that obliterative coloration is a universal attribute of animal life, we feel sorely tempted to poke fun at him. We would ask all those who believe in the universality of obliterative coloration to observe a flock of rooks wending their way to their dormitories at sunset."

Mr. Roosevelt, in Appendix E of his 'African Game Trails,' has disposed effectually of the dicta regarding the invisibility of the giraffe, zebra, and a host of other conspicuous beasts which have only to fear destruction from animals that hunt by scent alone.

Without any desire, however, to poke fun at Mr. Thayer, we may now consider a few of his important cases. We do this seriously, knowing full well that we see not with the eye of an artist, and that we shall probably be more pitied than blamed for what we write. We are, however, far from convinced as to how valuable an attribute this artistic eye really is; and are inclined to wonder whether, from a scientific point of view, a more open-minded conservatism would not be more persuasive in the end.

When Mr. Thayer says: "The color relations of earth, sky, water, and vegetation are practically the same the world over, and one may read in any animal's coat the main facts of his habits and habitat without ever seeing him in his home," it is in just this sort of thing that he has gone furthest wrong. The Peacock which he depicts merged in a jungle of varied greenery and blue sky is, as every field naturalist who has seen the Peacock at home well knows, a bird quite as often of the open fields and bare hillsides as of the jungle. The bird, for all his supposed protective mimicry, is safer in the open land, or sitting, as one so often sees him, on the dry top of a dead tree. Here he can see clearly all about him, better than if he were in the jungle, where prowling beasts of prey might follow him by scent — which they probably do far more often than by sight — and so quite easily find and destroy him.

Again, Birds of Paradise are shown in Plate VI as disporting themselves in a forest of waving palms, and amidst a general environment which it is hard to believe a visitor to the jungle has ever drawn. In Papua the male Birds of Paradise may usually be seen,— and heard too,— from bare tops among the tallest

forest trees. They may be followed and discovered with the greatest ease, and make no efforts at concealment by placing themselves in the proper position, or by remaining motionless so as to deceive one, as do Bitterns, for instance, which use a real protective coloration. The females, of course, as has always been known, are inconspicuously colored; and for this reason they are difficult to observe.

We would protest gently against the slightly patronizing way in which the effective concealment of many birds is pointed out which has been known and recognized since ornithology began to be studied at all. There is nothing new in the statement that the Woodcock, or any of the horde of Grouse and their allies, have taken on a color which affords them excellent protection. In the Amazonian forests and elsewhere in Tropical America, snow-white Cotingas occur, which coloration might, to be sure, be useful in the Andes; but, when it is accompanied by the characteristic voice of the Campañero, it is hardly concealing.

The Flamingoes which we find in Mr. Thayer's book depicted as rosey clouds floating against the sky at sunset would, it seems to one who is not versed in optics, but who has seen Flamingoes, more probably appear as dark blotches against this same sky, when seen by an animal in the water in which the Flamingoes may be standing. The crocodile approaching one of the birds from the westward at evening would, we should imagine, be unlikely to see the Flamingo tinted rosily, but rather as a body cutting off the light rays from the afterglow; and such a body might be tinted any color, and still appear dark. Seen from the opposite direction it would be the only pink thing in the sky. Flamingoes hardly need this carefully arranged protection that is of value but a few minutes each day, and to be sure we see the curious cloud arrangement depicted on but very few days of the year — if ever. As for food, small gastropod molluscs, the sole food of the Flamingo, are not shy; and may be taken easily by any bird that feeds on them, whatever the color of the bird may be. Over the greater part of the American Flamingoes' range, at any rate, the anacondas and alligators of which Mr. Thayer speaks are not dangerous to him. In the Bahamas there are none of either of these enemies; and crocodiles are very scarce, and anacondas non-existent, throughout the whole

West Indian area. The two species of Andean Flamingo— *Phœnicoparrus andenus* and *P. jamesi*—as well as also *Phœnicopterus chilensis*, would be even less likely to meet with enemies of this sort. This leaves only the small African Flamingoes, *Phœniconaias minor* and *Phœnicopterus roseus* to be mentioned. Of course there are no water snakes in the Old World capable of swallowing a flamingo, and crocodiles would be dangerous over only a comparatively small part of the range of these birds. So that taking the group of Flamingoes as a whole, and their geographic distribution as a whole, we see that these two elements of danger would only be likely to affect a couple of species, and that over only a small part of their range. This is assuming that there are Flamingoes which would not *see* the coming enemy first, which is very improbable indeed. The fact that Flamingoes, Spoonbills and Scarlet Ibis lose the pink of their plumage almost at once with change of food in captivity shows that this characteristic is probably not one which has been fixed by organic evolution but is, as is probably often the case, a purely physiologic result from their mode of life.

This same method of analysis might be followed out for many of the other examples which Mr. Thayer uses. It is somewhat enlightening to match the Flamingo and the Roseate Spoonbill drawn in Plate IX with actual skins of the species. One would hardly believe it possible that they could have been drawn from specimens.

Mr. Thayer has devoted a number of pages (66–71) to the consideration of the exquisite plumage of the Wood Duck, in which he discovers a veritable picture-puzzle of water, forest-pools, cow-lily flowers, grass, reflections, window effects due to speculum, etc. In other words, the plumage is said to be "ruptive," "countershaded," "secant-marked," etc.

We must say that we admire the Wood Duck, we hope as much as Mr. Thayer does. We have seen him wild from New Brunswick to Florida, and have bred him in captivity in some numbers. Perhaps our imagination is at fault, perhaps our artistic education has been somewhat neglected; but we are content to look upon *Aix sponsa* as a beautiful bird with a strongly developed and pleasingly constructed dimorphism of plumage.

Mr. Thayer has made this duck the subject of some beautiful

plates. We should like only to call attention to the fact that during nearly the whole season of greatest luxuriance of aquatic foliage the male Wood Duck, and other species as well, assume a nearly perfect "eclipse" plumage. The feathers are most brilliant during the late autumn, winter, and early spring, when their surroundings are of a dead and monotonous color. Hence, if we attributed any protective importance to such color patterns, we should be inclined to consider this of distinct disadvantage.

We believe the Caprimulgidæ, to take one of Mr. Thayer's first examples, to be a family with wonderfully adapted coloration. But here again we cannot but emphasize the enormous value of habit, which seems to us of far more value than color. We have, for instance, found a new white tennis ball an exceedingly difficult object to find, even in short grass; and chiefly for one reason — its habit of keeping still; yet we know approximately where to look for it.

It must seem that the premise which claims that this subject is one eminently fitted for investigation by an artist, and that it has wrongly been considered a part of the zoölogist's province, would need some revision. We are told that "it has waited for an artist in the last years of the nineteenth century not only to recognize the basic working laws of protective coloration, but to perceive that the many animals of supposed conspicuous attire are almost all colored and marked in a way most potent to conceal them." It would seem almost necessary that the painter should have a really wide knowledge of the varying forms and colorations of organisms of several classes of the animal kingdom before such broad statements were made. We have been shown in many cases that the female of a species having one type of coloration is protectively colored; and again that the male of the same species, with perhaps an enormously different type of coloration, is protectively colored also. We get, however, no suggestion as to how this was brought about. We must assume that primitive birds, indeed all birds, started originally with similarly colored males and females. The coloration of the Black Duck as compared to that of the Mallard is a case in point. Now, how and why should such a change have occurred except by sexual selection, or some process directly akin to it, pure and simple?

We think we can account for the way in which secondary sex characters are perpetuated, or perhaps even increased, on the assumption (in polygamous forms at least) that those males with the most marked sexual characters would tend to be the most vigorous in a struggle for the other sex. But this assumption leaves us completely in the dark as to the fundamental significance of sexual dimorphism, and further speculation is out of place in the present paper. We merely mention it to point out one of the biological problems which Mr. Thayer, in his enthusiasm, has ignored or glossed over with an artistic haze.

Another phase of the question which Mr. Thayer ignores is the question as to whether or not the habits of an animal demand protection. By skilful jugglings we are shown how anything and everything may be rendered inconspicuous, usually by artificial means, or under artificial conditions. The processes and steps by which these phases of coloration have been reached are ignored. The black and white skunk, the black and white zorilla of South Africa, and the curious, badger-like *Mydaus javanensis* of Java and Sumatra, have all independently taken on what we may call skunk coloration, and have all developed the well-known skunk smell. The line of demarcation between black and white as seen against the sky-line by a cringing grasshopper, or some other sort of puny prey, may in extremely rare cases aid the animal in getting food; but ordinarily speaking, the skunk would only be preyed on from animals which swooped upon it from above; and the fact that its insect prey surely has not eyes of the same image-forming powers as our own makes us believe, as other naturalists have, that this classic example of warning coloration is just as conspicuous as we have always supposed it to be.

Such creatures as Crows live by their wits, their wits are their protection; and skill in escaping an enemy is surely a character subject to evolution, and capable of considerable development. We know that a savage sees a green parrot in a green tree almost as easily as we see a hen strolling across a barnyard; and a hawk sees a mouse running in the grass, while circling high in the air, quite as easily. The hawk sees small birds in the same way; and we believe that the bird which can dodge most skilfully is the one that survives in the long run. Cases of the extermination

of birds well protected by coloration are not rare. *Bowdleria rufescens*, from the Chatham Islands, has become completely extinct through the introduction of cats and possibly of weasels. Yet an examination of the two skins of this species preserved in the Museum here in Cambridge show us a bird rich brown above, streaked with darker brown, fading to white below — an ideal type of concealing coloration for a bird which lived in the reed beds or wild-flax fields of the desolate Chatham Islands. These birds disappeared because they could not use their wits, just as other birds disappear with the introduction of the mongoose. A hundred examples of such extermination could easily be cited. Yet birds colored in the same way live on in spite of the presence of many Herpestes in India, where they have always been indigenous.

Mr. Thayer, in a recent number of 'The Auk,' tells us that he has painted a Himalayan Mountain gorge from the colored feathers taken from the plumage of the male Monal,— why not female? He fails to add that he might have accomplished the same result with the colors seen in a polished agate, or taking the varied tints seen on the skin of a baboon's nose. This method of persuasion, while it does appeal to the public, is — there is no other word — simply charlatanry however unwitting. We are also informed that the colors taken from a flamingo, or rather the actual plumage of the bird, has been used to paint a splendid sunset. What would Mr. Thayer use to paint a rainy day,— may we perhaps suppose the colors of the bird's feet and bill? For rain does fall even where there are flamingoes.

The Papuasian forests of New Guinea and the Cape York Peninsula of Australia support a host of pigeons. These vary in form and hue from the great stupid Blue-gray Goura to the small lively doves of what we may conveniently term the genus *Ptilopus*. Among these arboreal pigeons we find some birds almost entirely pure white, and some solid green; others with the most bizarre arrangement of pink, and yellow, magenta, red, blue, and indeed almost every color. Are these birds of similar habits all equally protected in the same forest; or do they have so few natural enemies that they need less protection than usual?

If Mr. Thayer had handled a large museum collection of birds, and if he had happened to see any considerable number of them in

their native haunts in more than one zoölogical region, he would probably realize, as other naturalists have realized, that amongst many groups of birds color appears to be absolutely haphazard, the result of selections of various sorts concerning which we have as yet but little understanding. The fact that a red tanager, for instance, is protected in a forest of green, because the colors are complementary and because red occurs in the small areas of light produced by sunshine coming through green foliage may be so, although we doubt it. Nevertheless we do know that a vast majority of the birds of that same forest are not colored red but some or indeed almost any other color!

Again we ourselves see in the origin of counter shading only a manifestation of the direct influence of light rays. The condition is not one which we can suppose to have been derived by selection of any sort. The white ventral surface of a flounder can be darkened by the action of light and pigmented fishes which have taken to living in caves have descendants which are pigmentless. Mr. Roosevelt has raised the question of why a counter-shaded creature covers its important white belly by squatting when it most needs any protection which counter shading might give. This question remains unanswered. So that suggestive as it is we cannot as yet quite swallow the theory of counter shading in its entirety.

We see in the vast variation of color which many closely related species exhibit, the operation perhaps of chance germinal variations, perpetuated because, on account of their relative unimportance, they cease to become an object of special selectional value to the individual. This is perhaps akin to variations seen in degenerated organs and tissues, which, no longer subject to selection, are apt to show marked individual variation.

The very wealth of variety of external coloration and pattern, as against the extraordinary stability of the more important organs and tissues, would tend in our eyes to lower its immediate protective importance.

Acquiescence in Mr. Thayer's views throws a pall over the entire subject of animal coloration. Investigation is discouraged; and we find jumbled together, a great mass of fascinating and extremely complicated data, all simply explained by

one dogmatic assertion. For we are asked to believe that an animal is protectively clothed whether he is like his surroundings, or whether he is very unlike them (obliteratively marked); or, on the other hand, if he falls between these two classes, there is still plenty of space to receive him.

We cannot always presuppose so intense and bitter a struggle among all forms of life that an extremely slight favorable variation turns the balance, or that the constantly recurring momentary crises safely passed by the instant action of some color feature preserves one breeding individual in preference to another. The struggle exists, but is it quite so bitter as we would seem to have to believe? We are inclined to temper it with the spirit of altruism which Hanseman has so well discussed in his book, 'Heredity and Pathology.' Here the word altruism is used in a strictly biological sense as "the reciprocal relation between individuals and between species for the purpose of producing a more favorable modus vivendi for all"; and the idea is developed that annihilation cannot have been the underlying principle of evolution. Indeed, we think that nature is not always bitter. It is hard to find instances of a predatory animal surrounded by its normal environment causing the extinction of any species on which it lives. We do not believe this condition of affairs to be due to protective coloration, either.

We owe Mr. Thayer a debt of gratitude. He has brought a fascinating subject to a prominence that it has long deserved, but which it has not had. Much of what he shows us, where his illustrations are applicable to natural conditions, and where they are not specially arranged to illustrate some supposed state of affairs which may be capable at least of double interpretation, are of great value. We do not wish to seem destructive, and we have purposely omitted calling special attention to the strong features of the book. This has been done, and well done, by more able reviewers than ourselves. We have chanced to have, one or the other of us, opportunities for observation in the field in almost every part of the world; and for this reason, if for no other, we have felt emboldened to offer these critical notes; and we can but hope that Mr. Thayer and his followers will read them and interpret them in the spirit in which they are written. They are simply

the impressions made upon open-minded observers who have no axe to grind, and who have no reason to take sides on the question, one way or another. They have been written in a friendly spirit, and we hope they will be received in the same way.

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## TEN YEARS OF OBSERVATION ON THE MIGRATION OF ANATIDÆ AT WENHAM LAKE, MASSACHUSETTS.

BY J. C. PHILLIPS.

WENHAM LAKE is 20 miles northeast of Boston in the town of Beverly and Wenham. It is one and one third miles in length, and is divided into an upper and a lower basin. The lower basin is larger and very much deeper, averaging across its middle portion over fifty feet, with several deeper spots. The upper basin is somewhat shallow with one very long cove, attractive to the surface feeders. The pond is situated in a thickly settled region. Along the eastern shore is a brightly lighted main road — Main Street. At the south end are two large pumping stations, with tall chimneys and numerous cottages. At the southeast corner and at the north end are ice-houses. The whole western shore is wild, mostly high land with white oak forest. In the fall the pumping operations often lower the level of the lake ten or twelve feet.

The pond weeds common to the lake, very kindly identified for me by Mr. W. L. McAtee of the U. S. Biological Survey, are quillwort (*Isoëtes echinospora*, var. *braunii*); pondweed (*Potamogeton lucens* and *P. perfoliatus*), the "red head grass" of Currituck Sound; *Naias flexilis*; *Sagittaria teres*; wild celery (*Vallisneria spirilis*). This sheet of water is therefore well supplied with foods attractive to ducks.

The following list of Anatidæ represents ten consecutive years of gunning and of careful records at a point on the western shore of the lake.

At present it is likely that future records of this sort will not be kept, so that it seems worth while, in view of the paucity of similar data, to give a complete list of all the species taken during this period, with brief notes about each; such estimates are of interest at least for purposes of future comparison.

I shall also give the percentage of each species as it figures in the totals for the ten years, and in the cases of the more uncommon varieties, the actual dates and numbers.

Before beginning, it may be well to sum up the actual result of each year in numbers, and also to give the yearly number of fowl seen from the stand, an actual record of which has been faithfully kept. In the table, "total fowl" means all fowl seen from the stand during the season in question. "Fowl flying" refers to those birds passing over which did not light, while "fowl in pond" are the birds which alighted.

| Year | Total fowl | Fowl flying | Fowl in pond | Fowl shot | Records begun | Records ended | No. species taken |
|---|---|---|---|---|---|---|---|
| 1900 | 984 | 581 | 403 | 163 | Sept. 15 | Nov. 20 | 13 |
| 1901 | 1149 | 619 | 520 | 327 | " 20 | Dec. 2 | 18 |
| 1902 | 591 | 291 | 300 | 182 | " 15 | " 9 | 19 |
| 1903 | 845 | 315 | 530 | 308 | " 15 | Nov. 26 | 19 |
| 1904 | 1476 | 860 | 616 | 345 | " 5 | " 10 | 20 |
| 1905 | 607 | 215 | 392 | 232 | " 13 | " 14 | 15 |
| 1906 | 248 | 54 | 194 | 51 | Oct. 1 | " 6 | 7 |
| 1907 | 292 | 78 | 215 | 104 | Sept. 15 | " 11 | 12 |
| 1908 | 368 | 89 | 279 | 177 | " 20 | " 11 | 16 |
| 1909 | 651 | 359 | 292 | 165 | " 23 | " 23 | 15 |
| Totals Period 1900–1904: | 5045 | 2666 | 2369 | 1325 | 364 (total days observation in first 5 years) | | |
| Period 1905–1909: | 2166 | 795 | 1372 | 729 | 269 (total days observation in second 5 years) | | |

The chief points to be noted in the above table is the extraordinary diminution of "total fowl" observed in comparing the last

with the first five year period — 2166 as against 5045. It is true that we have 25 per cent less days of actual observation in the last period, but a glance will show that this paucity covers dates mostly outside the high tide of migration, the month of October and early November furnishing of course by far the most of the duck records, while by late November the migration of all save a few Black Ducks, Sheldrakes, Whistlers, Buffle-heads, and Green-winged Teal, is over. Geese do not figure very largely in these totals, as in a previous paper I have noted that the coastal flight is well to the eastward of Wenham Lake.

I do not believe for a moment that there is an actual diminution of fowl nearly as great as these figures suggest. The periods considered are much too short for actual comparisons of this sort. I know for instance that we have to consider the periods 1900–04, which an examination of the records of several clubs at Currituck, N. C., show to have been one of great abundance, for the surface feeding ducks at least. The season 1909–10 stands out above all others for one club which has kept a record since 1888–89. Fluctuations in numbers may last for one or several years.

Other factors, such as the increase of boating, and the placing of a great number of electric lights about Wenham Lake, have undoubtedly tended during the last five years to discourage fowl; but in spite of all this I cannot but feel that there has been an actual decrease of the migration wave for this locality, perhaps amounting to 20 or 25 per cent.

Some of the individual records given below are embodied in Townsend's 'Birds of Essex County.'

MALLARD (*Anas platyrhynchos*). The total number taken for the entire period is 33. Not many more are noted. The Mallard occurs in little scattered flights which extend over two or three days, during which nearly all the gunning points get one or two. They have never occurred in September, and usually not before October 12 or 15. During the years 1900, 1905, 1906, 1907 and 1908 none were noted at all.

BLACK DUCK (*Anas rubripes* Brewster). Occurs occasionally in considerable numbers during the latter part of September, but for the last five years there have been very few noted. On years when Black Ducks are numerous there is always a good showing

in September. If a September flight occurs, it is sure to arrive any time after September 18 with the first cool frosty night, especially if preceded by a northwest wind.

This September flight we have always found preceded and accompanied by a marked migration of Osprey (*Pandion haliaëtus carolinensis*). These early birds are tame and easily decoyed. Mr. Brewster in 'The Auk' for July, 1909, noted that my records showed typical red-legged individuals occurring early only three times: September 29, 1904, October 3, 1907, and October 9, 1906. After October 20 they are common.

None of the regular local Black Ducks have ever used Wenham Lake, though undoubtedly if there was no boating, birds from Essex and Ipswich would use this sheet of water for a drinking and resting spot. Occasionally late in the fall and sometimes on heavy northeast storms, accompanied by high tides, a flock or two of "bay ducks" will come over from the salt water. These local ducks are extremely wary, and if shot, smell strongly of their salt-marsh foods.

The largest flock of Black Ducks which has visited the lake in the last ten years is 25. Flocks of over ten or twelve are rare. They arrive usually from a northeast or southeast direction, and alight far from shore in broad water.

Black Ducks represent over 33 per cent of the entire results for the ten year period. This is the duck *par excellence* of a thickly settled and shot-out country, for if given any chance at all, it will hold its own. The introduction of motor boats and night herring torching on the numerous creeks of the Ipswich marshes has sadly cut down the winter residents in Essex County. The main local breeding ground is the valley of the Ipswich River and its tributary brooks, where the building of cottages and the increase in canoes ever tends towards forcing the birds into a more restricted area. Careful spring protection, however, holds out hope that they may hold their own. In early August, 1908, while on a house-boat in Plum Isle River I had the opportunity to see 150 Black Ducks coming each evening to an artificial fresh water pond of some 75 acres in extent. This, however, was an unusual sight, even for this, a favorable spot.

GADWALL (*Chaulelasmus streperus*). This duck, exceedingly

rare in eastern Massachusetts, has occurred only once, October 26, 1904, when a single female was secured. Dr. Townsend, in 'The Birds of Essex County,' mentions several more taken during the same season.

BALDPATE (*Mareca americana*). The Widgeon is not at all an uncommon bird. There are numerous dates for September in the Wenham Lake records. They are often seen as single birds or in pairs, and once or twice in little flocks. Nineteen is the largest number in one year for the stand, and they have occurred every season except one. Fifty-six individuals have been taken. These Widgeon have usually decoyed readily, and seem to delight in climbing up on the beach, where they run about on good terms with the live decoys. They are, of course, all in immature plumage.

WIDGEON (*Mareca penelope*). While looking at the axillary feathers of various birds in the Museum of Comparative Zoölogy, Mr. Outram Bangs recently pointed out to me a new way of distinguishing at a glance, regardless of sex or plumage, between *M. americana* and *M. penelope*. This has enabled me to identify four Widgeon skins as belonging to *M. penelope* out of six skins from Wenham Lake, as follows: An immature male and a female taken Nov. 15, 1904, and two females (from the collection of Dr. C. W. Townsend) dated Oct. 17, 1903. All four of these skins have reddish heads. The 1903 birds are remembered to have been saved on account of their appearance, but the other two were probably set aside at random.

The characters referred to above are as follows: *M. americana*, axillaries practically pure white, except for a very fine dusky pattern at extreme tips or a slight dusky line along the main shaft in some cases. *M. penelope*, axillaries markedly dusky and finely patterned, especially on the inner webs. The outer webs may be almost entirely white, giving an appearance of white axillaries, until the feathers are spread apart.

This distinction has thus far been found to hold good through the entire series of Widgeon skins in the collection of Mr. William Brewster and the Museum of Comparative Zoölogy, comprising about fifty specimens of *M. americana* and about twenty-five of *M. penelope*.

The findings suggest the fact that *M. penelope* is far from an

uncommon bird and may turn out to be relatively more common among birds of the coastal migration route. Owing to the imperfect plumage of early fall Widgeon, it is not surprising that *M. penelope* has been overlooked, especially in Massachusetts.

GREEN-WINGED TEAL (*Nettion carolinense*). Has only occurred four times in the ten years, nine individuals being taken. The dates were in late November and December.

BLUE-WINGED TEAL (*Querquedula discors*). This duck is represented by only 13 individuals, this paucity being due to the fact that its migration is commonly in the second week in September, lasting but three or four days, and following rather strictly along the coast. During the great teal flight of 1904 I saw a flock of about 50 on Wenham Lake on the evening of September 13, as noted in Townsend's 'Birds of Essex County'; and on the same day another flock passing. September 15, 16, 22, and 27, 1904, flocks of teal were noted; but these are the only flocks appearing in the records.

The Blue-wing, quite curiously, is often associated singly with one or two Black Ducks. They quack lustily on hearing the decoys, and seem anxious to come to shore.

SHOVELER (*Spatula clypeata*). Represented by two specimens only, October 8, 1901, and November 6, 1903.

PINTAIL DUCK (*Dafila acuta*). This duck, which, with several other species goes in Massachusetts by the name of Gray Duck, is always seen in very poor plumage, and is confused with Widgeon, Gadwall, and Mallards. Our records show but 22 individuals and a few others observed. The flight is early. There are no November records for Wenham, but at Oldham, south of Boston in the town of Pembroke, Mass., I have one for November 21, 1909.

WOOD DUCK (*Aix sponsa*). Scarce migrant, but not uncommon locally. There are a few about the lake from early April to late October. These are birds which breed near by. They pay no attention whatever to the decoys. They often frequent a small mud-hole near the eastern shore of the lake. The largest flock of apparent migrants was eight, on October 3, 1903.

REDHEAD (*Marila americana*). The Redhead usually puts in a sudden appearance, often mixed with Lesser Scaup Ducks, occasionally single, but mostly in small flocks. They break out of the

sky with a roar of wings. On the pond they are, in the presence of live decoys at least, very restless, continually making short unexpected flights, only to return to the same spot. During the best year, 29 were secured, and another year 22. They have occurred eight out of the ten years, and 82 specimens have been taken. They are of course rare here as compared with ponds on the south shore of Martha's Vineyard.

CANVAS-BACK (*Marila vallisineria*). This species has occurred as follows: one on November 13, 1902; 5 on November 4, 1905, and two on November 3, 1909. One other individual was identified through a glass, but this completes the list. It was a curious coincidence that on the morning of November 4, 1905, three Canvas-backs came to the decoys before it was light, and at 2:30 P. M. of the same day a pair was taken.

SCAUP (*Marila marila* and *M. affinis*). These two species have been bunched in the records, so that it is not possible to separate them. During the last three seasons, however, and in 1904, count has been kept, and places the Greater Scaup at about 20 per cent of the number for the two combined species. The Scaups represent 13 per cent of the entire bag for the ten years. The Lesser appears at times in flocks of 12 to 25, while the large Scaup are often single, or three or four together. Nearly every flock of Redheads has had at least one or two Scaup among them. Scaup appear scattered along in the records late into November, and my earliest for the lake is September 18, 1904 (*M. marila*). The next earliest is October 4, 1900 (species not stated). Their appearance between the 8th and 12th of October is regular enough to be depended upon, and only once are they recorded as late as October 18.

RING-NECKED DUCK (*Marila collaris*). It is possible that some of these may have passed as common Scaups, as I did not see all the birds as they were taken. I am sure, however, that only a few could have got by in this way. The records show three specimens: one each on October 9 and 26, 1907, and one on October 13, 1908.

GOLDEN-EYE (*Clangula clangula americana*). A very common bird in the pond late in November, and always tending to become local at that time of the year, moving back and forth to the salt-water with the regularity of clock-work, but never, so far as I am

aware, spending the night on fresh water. Some fifteen years ago I shot several Whistlers about September 26 or 28,— the date was lost; but for the ten years the earliest appearance is October 8, 1904. The number taken, 5 per cent of the total fowl, does not at all represent the true abundance of this bird, as its natural shyness and absolute disdain for live decoys make it one of the most difficult birds to take from the shore. In the spring it is the first fowl to cheer the desolate surface of the lake, gathering in little flocks before the ice is out, and tracking regularly to salt water for several weeks.

BUFFLE-HEAD (*Charitonetta albeola*). A common late arrival at the pond in small flocks of three to six, and often with Ruddy Ducks. The earliest arrival is October 9, 1900; the latest arrival, November 4, 1904. From the 19th to the 25th of October is the ordinary date of appearance. Forty-seven individuals have been taken, which number does not represent their relative abundance, as they were not always shot on account of their small size and inferior flesh.

OLD-SQUAW (*Harelda hyemalis*). A rare duck in the ponds of Massachusetts, and represented here by only four individuals. Several others are noted as being seen. Occurred alone each time. The earliest is October 20, 1902.

NORTHERN EIDER (*Somateria mollissima borealis*). Has never occurred to my knowledge in the ponds of eastern Massachusetts except once at Furnace Pond, Pembroke, November 9, 1909. Three were shot, one of which is in my collection.

SCOTERS (*Oidemia americana*, *O. perspicillata*, and *O. deglandi*). Of these three ducks, the White-winged Scoter is by far the most common in the pond, and represents about 4 per cent of the total score. Large flocks of Scoters in migration are rarely seen at Wenham. Such a flight was only once noted, October 9, 1900, in a heavy northeast storm. Our point of observation is too far west to see many of these fowl.

RUDDY DUCK (*Erismatura jamaicensis*). The Ruddy Duck represents 15 per cent of the total number of fowl taken. From year to year there is a great variation in the number of these birds seen. In 1905, 114 were taken, and 70 others recorded, while in 1907 only one was taken, and two others noted. The earliest date is September 30, 1904.

CANADA GOOSE (*Branta canadensis*). As I have noted in a previous paper (Auk, July, 1910), geese are much less common here than at Chebacco Lake on Cape Ann, or rather at the base of it. There is a fly-way across the north end of Wenham Lake between Dodge's and Burnham's Hills, where far more geese pass than at the blind, from which point this fly-way cannot be seen. One hundred and eighteen geese figure in the totals. On a number of years, as will be seen by the table, the camp was closed too early to take advantage of the geese.

CORMORANT (*Phalacrocorax carbo*). Occasionally these birds have dropped into the lake, when, after a few dives, they usually go out of their own accord. Seven specimens have been taken, and a few others noted on the pond. Flocks in migration are common.

AMERICAN MERGANSER (*Mergus americanus*). A moderately common visitor to the lake after November 1. Twenty-three specimens have been taken, but among these only two fine males. On December 7, 1902, I have a record of the weights of these two males; 3 lbs. 15 oz. and 3 lbs. 7 oz. It is probable that the migration of the males is much later than that of the females.

RED-BREASTED MERGANSER (*Mergus serrator*). About as common as the American Merganser, 29 having been taken. Adult males very rarely seen, as in the foregoing species. Neither of these birds take kindly to live decoys, and approach the shore only in rather deep water.

HOODED MERGANSER (*Lophodytes cucullatus*). This bird has occurred in nine of the ten years, and is by far the commonest merganser seen about the pond. Adult males are again exceedingly rare. Out of 44 birds taken, I have only one really fine male in my collection, while I can recall only one or two others nearly approaching adult plumage. The fine male was taken on November 2, 1908. Unlike the preceding two species, this "wood sheldrake" is glad to associate with live decoys, and usually swims quickly among them if he alights near by. Of late years we have allowed them to go unmolested.

HOLBŒLL'S GREBE (*Colymbus holbœlli*). Represented by three specimens only, taken Oct. 27, 1903, Oct. 24, 1904, and Nov. 13, 1902.

HORNED GREBE (*Colymbus auritus* Linn.). Not very common. On October 1, 1904, a flock of 26 came into the lake, and six specimens were taken. A few others have been seen, but they have not always been separated from the Pied-billed Grebe in the records.

PIED-BILLED GREBE (*Podilymbus podiceps*). Seen quite commonly about the pond any time after the first of September. Has an innate love for the live decoys, among which it dives, striking terror into their hearts. By the end of October the grebes are rare.

LOON (*Gavia imber*). Very common in migration, but rather rare in the pond. If the gunner watches his decoys closely, he will often catch them cocking their heads, and if he looks directly into the zenith he may often see very high-flying fowl, more than likely loons. Large numbers of fowl which are so high as not to be visible except when directly overhead must escape observation. Only three loons are noted as having been shot, but many others were left unmolested. They evince a good deal of curiosity about the live decoys, and like to swim about just out of gun range.

RED-THROATED LOON (*Gavia stellata*). Rare in the pond. The only specimen in my collection is a female marked Wenham Lake, October, 1906. This bird has probably been once or twice included in the records under loons.

COOT (*Fulica americana*). Very common, but usually appearing alone. By nature rather sociable, this bird likes to come in amongst the decoys, or to sit on the beach near by. It is not uncommon at the time the camp is opened, and the latest date is Nov. 19, 1904.

### *Chebacco Lake.*

This pond is situated four miles east and a little north of Wenham Lake. It is a long, narrow, and rather shallow pond of irregular shape, one and one fourth miles in length. It is therefore nearer the sea, and at the base of Cape Ann.

In looking over the gunning notes for a stand on the east shore of this pond from the year 1894 to 1909, there are several interesting facts worth noting.

The chief difference between this lake and Wenham is the comparative rarity of deep-water ducks — Redheads, Scaups, Ruddy

Ducks, and Whistlers; while a great many more Black Ducks and geese are seen in migration.

For instance, during the ten year period which we are considering at Wenham, I find Ruddy Ducks mentioned only on three years: one was taken in 1906; 2 in 1908, and five in 1909.

Redheads: 2 in 1904, 9 in 1909.

Whistlers are seldom seen or taken.

The proportion of Black Ducks to the total bag is larger than at Wenham. Spoonbills are noted on four occasions, five birds having been taken.

The terms Widgeon and Gray Ducks are used a great deal, but as these names are applied to a variety of species, it is not safe to lay too much stress upon them.

Geese are seen in some numbers at Chebacco Lake, perhaps three times as many as at Wenham.

Brant have come to the pond on two occasions, November 9, 1905, and November 26, 1900. They have been noted in flight several times.

In order to try and get a clear idea regarding the part of the country whence the Wenham flight ducks have come, a collection of stomachs was made in 1909, representing 11 species by 66 specimens.

These were very kindly analyzed by Mr. McAtee and his report is freely quoted below. Referring to the entire collection Mr. McAttee says: "One remarkable fact about them is that of the entire lot of 66, 22 were empty or nearly so. This is an unusual proportion of empty stomachs.... However, many of the birds must have had access to good feeding, as shown by the presence of wild celery, *Vallisneria spiralis*, in 12, and several of the stomachs were well filled.... The percentage of mineral matter for the whole number of stomachs is 35.6, rather high, showing that on the average the birds were not full fed. Most of them had access to good fresh-water feeding grounds, the Black Duck, Widgeon, Mallard, Ruddy, Goldeneye, and Canvasback getting buds and rootstocks of wild celery.... Most individuals of the above mentioned species, and of both Scaups and Blue-winged Teal and Merganser had secured their food in fresh water. The Geese, however, one containing eel-grass and 8 an alga like the sea lettuce, *Ulva*, came

from the coast. The presence of marine mollusks in the stomachs of two Black Ducks, 2 Lesser Scaup and one Greater Scaup shows where these birds had been feeding before visiting Wenham Lake.''

Mr. McAtee adds that he could make nothing out as to the point of origin of these birds from their stomach contents, but thinks that it is evident that they have come from a considerable distance without stopping long to feed. The analyses in detail are as follows:

"The contents of the Black Ducks' stomachs (29 in all, 4 empty) was 88.4 per cent. vegetable, the principal items being seeds of bur-reed (*Spanganium*), pondweed (*Potamogeton*), bulrush (*Scirpus*), eel-grass (*Zostera*) and mermaid weed (*Proserpinaca*), and buds, rootstocks, etc., of wild celery. The animal matter, amounting to 11.6 percent., included, in the order of importance, snails, ants, chironomid larvæ, bivalves, crustacea, and insects. The percentage of mineral matter of the gross contents was 36.5.

"The Geese had eaten vegetation entirely, including grass, eel grass, and algæ. Six of the 9 gizzards were nearly empty, and the mineral matter was 68.33 per cent of the gross contents.

"The Widgeons were entirely vegetarian also, consuming pond weed, wild celery, water-lily seeds (*Brasenia*), bur-reed, and smartweed seeds (*Polygonum hydropiper*). Mineral matter, 65 per cent.

"Three of the 5 Greater Scaup stomachs were empty; the others held animal and vegetable matter in equal proportions, the items being bur-reed, pondweed, and bivalves (*Gemma gemma*). Three of the four Lesser Scaups were almost without food, the objects secured being seeds of bur reed, bayberry, and saw-grass (*Cladium effusum*), and snails (*Lunatia heros*), and ants.

"The three Mallards had full stomachs. Ninety-seven per cent of the food was vegetable, including seeds of bayberry, saw-grass bulrush, mermaid weed, and pondweed, seeds and plants of *Naias flexilis*, and buds, roots, etc., of wild celery. Their animal food included a dragonfly nymph, chironomid and caddis larvæ, crustacea, and snails.

"Six of the 10 Ruddy Duck stomachs were empty or nearly so. The food was 40 per cent vegetable and 60 per cent animal; gravel, etc., 50 per cent. Seeds of bur-reed, pondweed, bulrush,

and *Naias* and buds, etc., of wild celery are the plant items, and chironomid and hydrophilid larvæ the animal substances.

"Four other species of ducks are represented by single stomachs. The Goldeneye contained seeds of pondweed, water-lily, bayberry, and bur-reed, buds and roots of wild cleery, and bits of water boatmen, and dragonfly nymphs. Animal matter 6 per cent; vegetable, 94; mineral 40 of the gross contents.

"The Canvasback had eaten seeds of bur-reed and wild celery buds. Vegetable matter, 100 per cent; mineral 60. The Hooded Merganser contained dragonfly nymphs and caddis larvæ. Animal matter, 100 per cent; mineral 20. The Blue-winged Teal had many young snails, various insects, and seeds of bur-reed, pondweed, smartweed, and various sedges and grasses. Animal matter, 88 per cent; vegetable, 12 per cent; mineral, 8 per cent."

## THE BIRDS OF KERRVILLE, TEXAS, AND VICINITY.

BY HOWARD LACEY.

THE following list contains the observations I have made at my ranch where I have lived since 1882. Being always in the woods and fields, I have had a good chance to get acquainted with the natural history of the county. The ranch is seven miles southwest of Kerrville, in Kerr County, and about fifty-five miles northwest of San Antonio. It consists for the most part of rough hills and still rougher hollows and cañons, lying at an elevation of about 1800 feet, between the Guadaloupe River and its tributary Turtle Creek. It is well watered by small springs, but there is no considerable body of water nearer than the river.

The timber near Kerrville is mostly pecan, live-oak, hackberry and walnut in the valleys, with some fine cypress along the main river; on the hills occur cedar (*Juniperus*), shin-oak and Spanish oak. In the eastern and northwestern parts of the county there is a good deal of mesquite and the same sort of chaparral as occurs

near San Antonio, and several forms of animal life are common there that we seldom or never see near Kerrville.

Kerr County is especially interesting zoölogically because it marks the most southeastern extension in Texas of the Upper Austral Life Zone, which occurs here as a narrow peninsula extending into the county from the northwest and surrounded on three

Map of Kerr County, Texas. Shaded portion indicates Upper Austral Life Zone; unshaded portion = Lower Austral Life Zone.

sides by the Lower Austral Life Zone to which belongs the larger part of the plants and animals of the county.

Among the characteristic birds of the Lower Austral Zone that are here close to their northern or northwestern limit may be men-

tioned: *Anhinga anhinga, Mycteria americana, Florida cærulea, Ionornis martinicus, Scardafella inca, Catharista urubu, Parabuteo unicinctus harrisi, Buteo abbreviatus, Polyborus cheriway, Centurus aurifrons, Pyrocephalus rubinus mexicanus, Passerina ciris, Bæolophus atricristatus sennetti, Auriparus flaviceps.*

The intrusion of the Upper Sonoran Life Zone results in two interesting developments of the bird life. The first is the remaining here through the summer of several Upper Sonoran species, which here find the extreme southwestern limit of their breeding range: *Sayornis phœbe, Passerina cyanea, Lanivireo flavifrons, Mniotilta varia, Dendroica dominica albilora, Oporornis formosus.* The second result is the occurrence of several western species that rarely if ever extend further eastward: *Callipepla squamata, Cyrtonyx montezumæ mearnsi, Otus asio aikeni, Bubo virginianus pallescens, Coccyzus americanus occidentalis, Melanerpes formicivorus, Tyrannus verticalis, Aphelocoma texana, Corvus cryptoleucus, Icterus bullocki, Amphispiza bilineata, Aimophila ruficeps eremœca, Pipilo fuscus mesoleucus, Passerina amœna, Salpinctes obsoletus, Catherpes mexicanus conspersus.*

The list contains the usual percentage of accidental visitants: *Phalacrocorax vigua mexicanus, Dendrocygna autumnalis, Sphyrapicus thyroideus, Tyrannus melancholicus couchi, Zamelodia melanocephala, Hesperiphona vespertina,* the last of which is a new bird for the State.

### *List of Species.*

1. **Podilymbus podiceps.** PIED-BILLED GREBE.— Occasional in winter on the Guadaloupe River. One was brought to me on August 29, 1910.

2. **Larus franklini.** FRANKLIN'S GULL.— On April 26, 1909, a severe hail storm passed down Turtle Creek (a tributary of the Guadaloupe) at about 9 P. M. and did much damage, killing some livestock and many small animals and birds. Several Franklin Gulls were picked up dead and one was caught alive by a friend. I had not seen the bird here before, but saw a small flock on May 17, 1910.

3. **Hydrochelidon nigra surinamensis.** BLACK TERN.— A Tern seen nearly every year in late summer and early fall along the Guadaloupe belongs probably to this species; I have never been able to procure a specimen. Saw one August 23, 1910.

4. **Anhinga anhinga.** WATER-TURKEY.— Not at all common. Sometimes breeds on the Guadaloupe and its tributaries.

5. **Phalacrocorax vigua mexicanus.** MEXICAN CORMORANT.— One shot on the south fork of the Llano River, July 30, 1899.

6. **Mergus americanus.** MERGANSER.— Occasional in winter on the Guadaloupe River.

7. **Mergus serrator.** RED-BREASTED MERGANSER.— Occasional in winter on the Guadaloupe. In 1903 I saw a flock of about a dozen on the river just above Kerrville, as late as the first of May.

8. **Lophodytes cucullatus.** HOODED MERGANSER.— Occasional in winter.

9. **Anas platyrhynchos.** MALLARD.— Fairly common in winter. On October 31, 1883, there were thousands of these birds on the divide between Turtle Creek and the Guadaloupe; it was a dull misty day and they were feeding on the post oak and blackjack acorns of which we had a heavy crop that year. I have several times since seen them with their crops full of acorns.

10. **Chaulelasmus streperus.** GADWALL.— Fairly common in winter for a duck in a rather dry country. On May 17, 1905, a mixed flock of Gadwalls and Widgeons settled on a small pond in a field near the ranch house. We killed five or six of them and among them a female Gadwall that had plucked all the *outer* half of the down from her breast. She contained no eggs but had evidently nested somewhere that spring. This circumstance shows that some species of ducks would nest here if they had adequate protection.

11. **Mareca americana.** BALDPATE.— Not uncommon in winter. Seen here as late as May 19.

12. **Nettion carolinense.** GREEN-WINGED TEAL.— Occasional in winter.

13. **Querquedula discors.** BLUE-WINGED TEAL.— Common in winter; the earliest of the ducks to come back to us in August. Has been known to breed near San Antonio and would breed here if protected.

14. **Spatula clypeata.** SHOVELLER.— Occasional in winter.

15. **Dafila acuta.** PINTAIL.— Occasional in winter.

16. **Aix sponsa.** WOOD DUCK.— Formerly quite common, now very scarce; nested on the head of Kelly Creek on 1883–84; have not seen one for some years.

17. **Marila affinis.** LESSER SCAUP DUCK.— Not uncommon in winter.

18. **Erismatura jamaicensis.** RUDDY DUCK.— Have seen one that was shot on the Guadaloupe River.

19. **Anser albifrons gambeli.** WHITE-FRONTED GOOSE.— A bird killed and described by a friend probably belonged to this species. Geese very seldom settle anywhere in this county, but pass on to the coast prairies in the autumn, and towards the north in the spring.

20. **Branta canadensis.** CANADA GOOSE.— Most of the geese that

pass in spring and autumn belong probably to some form of this species. Earliest spring records, March 1; latest, April 11. Earliest autumn record, September 27.

21. **Dendrocygna autumnalis.** BLACK-BELLIED TREE-DUCK.— Saw a *Dendrocygna*, probably this species, when fishing on Turtle Creek on June 24, 1906. I was several times within easy gunshot of the bird. This is two hundred miles north of the normal range of the species.

22. **Mycteria americana.** WOOD IBIS.— Not common; saw five of these birds at the ranch on September 23, 1900; a flock of fifty or more frequented Turtle Creek from late in July, 1902, until the middle of August.

23. **Botaurus lentiginosus.** BITTERN.— The rather rapid mountain streams of this county are not well adapted to the needs of the bittern, but one is occasionally noted. One was shot in the little irrigation ditch at the ranch on October 28, 1908.

24. **Ardea herodias** subsp.? GREAT BLUE HERON.— Not uncommon; a few pairs breed in the county, usually by themselves. Early in April, 1893, about ten pairs were nesting together in the cedar trees (*Juniperus*) that overhang the steep cliffs of a ridge called the "Devil's Backbone" on Johnson Fork of the Guadaloupe. All the nests that I examined contained four eggs, and the birds remained on the nests until we were close to them. I have not heard of the birds nesting there since that date.

25. **Florida cærulea.** LITTLE BLUE HERON.— In 1882 and 1883 three or four pairs nested in a tall cypress tree at the mouth of Kelly Creek on the Guadaloupe. A flood or a high wind knocked down the tree and I know of no other nesting place. The birds are frequently seen in July and August along the Guadeloupe and its larger creeks, most of them in the white plumage. On July 12, 1901, on the Guadaloupe, I saw one little blue heron and three little white ones, and with them was a white heron about one third larger than the others.

26. **Butorides virescens.** GREEN HERON.— Rather common for a heron and breeds here regularly. Earliest spring record March 31, 1896; average for fifteen years about April 19. Nest with four fresh eggs May 6, 1897.

27. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.— Have seen a night heron on two or three occasions, probably this species, but many years ago; and I can find no record of it except that I have it on my list.

28. **Grus mexicana.** SANDHILL CRANE.— Passes over commonly in spring and autumn but very rarely settles in this rough hilly country. One was shot on Turtle Creek some years ago, but was probably a weak or crippled bird. Earliest spring record for 15 years, March 1; average, April 1. Earliest autumn record, September 16; latest December 25; average, October 10.

29. **Rallus virginianus.** VIRGINIA RAIL.— When fishing with Mr. H. P. Attwater on Turtle Creek September 14, 1896, we watched a rail feeding on the other side of the creek which was about 40 feet wide in that

place; we both came to the conclusion that the bird belonged to this species.

30. **Porzana carolina.** SORA.— On the night of September 20, 1896, a bird struck the tin roof of the ranch house and rolled off on to the ground; we went out with a lantern and picked up a Sora Rail: it possibly mistook the roof for a pond.

31. **Ionornis martinicus.** PURPLE GALLINULE.— May 20, 1909, a boy brought to Kerrville two Coots and a Purple Gallinule that he had shot on the Guadaloupe.

32. **Gallinula galeata.** FLORIDA GALLINULE.— Many years ago I had several of these birds that had been shot on the Guadaloupe and I have occasionally heard of them since.

33. **Fulica americana.** COOT.— Not uncommon in spring and autumn; would breed in suitable places if allowed to do so.

34. **Recurvirostra americana.** AVOCET.— Occasional: seen on September 3, 1902, and July 22, 1906.

35. **Himantopus mexicanus.** BLACK-NECKED STILT.— Occasional: seen on August 31, 1889.

36. **Gallinago delicata.** WILSON'S SNIPE.— Not uncommon in winter; it seeks the small warm springs in hard weather. Earliest record, September 13; average about October 10; have seen it as late as March 13.

37. **Pelidna alpina sakhalina.** RED-BACKED SANDPIPER.— A friend gave me two of these birds that he had shot out of a small flock along the Guadaloupe on August 8, 1897.

38. **Totanus melanoleucus.** GREATER YELLOW-LEGS.— Occasional, in company with *T. flavipes.*

39. **Totanus flavipes.** YELLOW-LEGS.— Not uncommon on migration; latest spring date May 15; earliest date of return, July 17.

40. **Helodromas solitarius** subsp. SOLITARY SANDPIPER.— Quite common in migration, April 12 to May 15; have seen it returning July 15.

41. **Actitis macularia.** SPOTTED SANDPIPER.— Quite common in migration and probably breeds as it has been noted in June on several occasions.

42. **Numenius americanus.** LONG-BILLED CURLEW.— Frequently seen or heard passing overhead in August and September.

43. **Charadrius dominicus.** GOLDEN PLOVER.— Some time in the autumn of 1882 I flushed a flock of plover on a fairly open place on the divide, which I feel sure belonged to this species. I was just out from England where I was well acquainted with the European form: have not seen a single specimen since.

44. **Oxyechus vociferus.** KILLDEER.— Common all the year; nests about the middle of March. On March 24, 1896, I was driving a flock of goats to their pen and noticed that at a certain point they divided into two flocks; I walked up to the place expecting to find a rattlesnake, and found instead a killdeer standing over her eggs with outspread wings and scolding vigorously.

45. **Colinus virginianus texanus.** TEXAS BOB-WHITE.— Common resident, getting scarcer for the last few years although comparatively few get shot at any distance from the small towns. Armadillos and hogs break up a good many nests. I have (on three occasions only) heard the male bird (when nesting) give a curious little chirping crow on being flushed. After the breeding season is over the well-known call "Bob-white" is not heard until the middle of the next April when they begin to pair again; I have listened for the call for many years and never heard it before April 16; the average date is about April 20. They usually try to raise two broods here and I have found newly hatched young in October. I once saw a hen quail fighting a Road-runner and she finally succeeded in driving it away from her baby brood.

46. **Callipepla squamata.** SCALED QUAIL.— Have seen this bird on the head of Johnson Fork of the Llano River in the northwest corner of this county; it occasionally breeds there but is rare and the locality is nearly at the southeastern limit of the range of the typical form of the species.

47. **Cyrtonyx montezumæ mearnsi.** MEARNS'S QUAIL.— Formerly fairly common in the western part of the county; have seen it at the ranch, 7 miles southwest of Kerrville, and on one occasion at least it has nested there. It is getting to be quite rare.

48. **Tympanuchus americanus.** PRAIRIE CHICKEN.— The oldest inhabitant had never seen a Prairie Chicken in this county until late in November, 1885, when one or two were reported as having been seen west of Kerrville. By the middle of December of that year they were very common at the ranch and on the dry headers of the Guadaloupe and Llano rivers, and were a welcome addition to the ranch fare from that time until early in April, 1886, when they all left us and have not been seen here since. It is too late now to determine the species and they may have been the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*).

49. **Meleagris gallapavo intermedia.** RIO GRANDE TURKEY.— Formerly very common, but getting rather scarce now that the shot gun is becoming almost as common a piece of furniture as the rifle in the ranchman's house. These birds are as foolishly tame when about half grown as they are wild and able to take care of themselves when fully mature: if they were not shot at until fully grown and allowed to roost in peace at night, there is no reason why we should not have them always with us. Armadillos and skunks sometimes roll the eggs out of the nests, and they have plenty of enemies besides the boy with the shotgun. The hen turkey as a rule begins to lay in March and I have seen quite small young ones early in April. If their first nest is broken up they will try again and I have found a nest with seven fresh eggs in it as late as June 4.

50. **Zenaidura macroura carolinensis.** MOURNING DOVE.— Very common in summer, and some few remain all the winter. After a day or two of really cold weather they get very weak and many of them die. They come to the fodder stacks in hard weather with the snowbirds and

sparrows and while the little birds are quite brisk and cheerful, the doves are hardly able to get out of one's way.

51. **Melopelia asiatica.** WHITE-WINGED DOVE.— One of these birds was killed in a field near Kerrville by a friend of mine on November 25, 1910. This is the most northwestern record for the State. I have heard that it has also been killed on one or two occasions at Boerne in Kendall County.

52. **Scardafella inca.** INCA DOVE.— Rather common in San Antonio and Kerrville and I have twice seen it at the ranch. It is a bird of the town rather than the open country and is about as confiding as the sparrows. It here reaches its extreme northeastern range in the State.

53. **Cathartes aura septentrionalis.** TURKEY VULTURE.— Very common; the majority leave in winter but a few remain all the year. Nests in caves like the Black Vulture, but as a rule nearly a month later than that bird.

54. **Catharista urubu.** BLACK VULTURE.— Very common resident; nests in caves, which are numerous in this limestone country. Eggs are laid as a rule during the first week in March. The young feign death when disturbed and I have seen an old one with the tip of its wing broken do the same thing.

55. **Ictinia mississippiensis.** MISSISSIPPI KITE.— Have not seen it in this county, but had one of a pair shot about 100 miles northwest of here in May, 1904, near the extreme western limit of the species.

56. **Círcus hudsonius.** MARSH HAWK.— Fairly common in winter, in the more open parts of the country; usually arrives early in September. Have not heard of it as breeding anywhere in this county.

57. **Accipiter velox.** SHARP-SHINNED HAWK.— Fairly common in winter. Does not breed here.

58. **Accipiter cooperi.** COOPER'S HAWK.— Common all the year. Nests early in April.

59. **Parabuteo unicinctus harrisi.** HARRIS'S HAWK.— Occasional. Have sometimes seen it in autumn and spring.

60. **Buteo borealis.** RED-TAILED HAWK.— The bird is (for a large hawk) a common resident. Nests in March on a bluff or in a tree. This bird is rather frequently seen with a good deal of white about it. One almost pure white stayed near the ranch for several years. I shot one that had much white on the wings and back; and a pure white bird, with black eyes was kept for years as a pet in a saloon at Kerrville in the early eighties.

61. **Buteo lineatus** subsp.? RED-SHOULDERED HAWK.— Not rare, but formerly much more common than it is now. Breeds in tall timber along the river and creeks.

62. **Buteo abbreviatus.** ZONE-TAILED HAWK.— A not unfrequent visitor in August and September. I see or hear of one or two almost every year. This is near the extreme northern limit of the species.

63. **Buteo swainsoni.** SWAINSON'S HAWK.— Large flocks pass over here in spring and autumn and are locally called Grasshopper Hawks.

Formerly they were in larger flocks than we see now. In the spring they come from April 3 to 27; in autumn from September 15 to October 12.

64. **Falco columbarius.** PIGEON HAWK.— Fairly common in winter and are rather given to stealing chickens.

65. **Falco sparverius.** SPARROW HAWK.— Very common in winter, generally arriving in August. I have no record of this bird breeding in the county but obtained a female on July 3, 1905, that had evidently been recently brooding on eggs. Saw one on July 5, 1908.

66. **Polyborus cheriway.** AUDUBON'S CARACARA.— A rather rare visitor along the Guadaloupe valley.

67. **Pandion haliaëtus carolinensis.** OSPREY.— One or two of these birds are seen every summer along the Guadaloupe, but I have no record of a nest. Have seen them as early as April 24 and as late as November 3.

68. **Aluco pratincola.** BARN OWL.— Not common. A pair bred many years ago in an old rock building at Kerrville, and I have seen the species once or twice along some of the bluffs.

69. **Asio wilsonianus.** LONG-EARED OWL.— I shot one of a pair of these birds on April 4, 1898; this is the only record I have.

70. **Strix varia** subsp.? BARRED OWL.— Oftener heard than seen; probably fairly common for an owl and resident.

71. **Otus asio aikeni.** AIKEN'S SCREECH OWL.— Very common. Nests as a rule early in April, and on warm days may be heard at midday in February and March. A pair of these birds tried to breed in a small heating stove in the house in 1896 and again in 1897, coming down the stovepipe which had a double elbow and laying in the stove: they made too much noise scratching up and down the stovepipe and so had to be discouraged. They often lay their eggs in houses put up for the martins or for pigeons and I think destroy the young birds. In May, 1908, a pair nested in the martin box at the ranch. Finding a dead martin under the box, I got a shotgun and sent a friend up the pole to investigate: an owl flew out and was promptly shot and then my friend found three young owls in the box, and brought them down, and put them under a live-oak tree in the yard. The remaining parent fed the young for a night or two on the ground, bringing them, among other things, two or three sphinx moths and a crawfish, and then persuaded them to climb into the tree. The next evening my friend was smoking after supper and the owl knocked his pipe out of his mouth. The owl next attacked the lady of the house as she was bringing in the milk, and as a final exploit struck me full in the face as I was standing near the tree, using force enough to draw blood. The next morning the whole owl family was put to death.

72. **Bubo virginianus pallescens.** WESTERN HORNED OWL.— For so large an owl, a common resident, nesting early in the spring in a cave in a bluff, a deserted Red-tailed Hawk's nest, or on one occasion on the flattened top of a squirrel's nest. Small rabbits seem to be their principal food, but occasionally they harry the hen roosts and I have known them to kill young wild turkeys, even when half grown.

73. **Speotyto cunicularia hypogæa.** BURROWING OWL.— Seen on migration in spring and autumn but does not breed here. March 4 to April 5 and September 23 to October 10.

74. **Geococcyx californianus.** ROAD-RUNNER.— Common resident. Nests in March and April. Eggs usually 5 to 6, on one occasion 7. Sometimes one finds eggs in various stages of incubation in the same nest, but not always, as I have found 6 eggs all fresh. The Road-runner makes a loud chuckling crowing noise in the spring, and also a cooing noise that might easily be mistaken for the voice of some kind of dove; it also makes a sort of purring sound in its throat, *perrp perrp perrp.*

75. **Coccyzus americanus occidentalis.** CALIFORNIA CUCKOO.— Common summer resident; average date of arrival April 20; earliest April 9. Usually leaves in September but have seen it as late as October 19, when the fall webworm has been particularly abundant. The western form reaches here its most eastern extension.

76. **Ceryle alcyon.** BELTED KINGFISHER.— Fairly common resident.

77. **Ceryle americana septentrionalis.** TEXAS KINGFISHER.— Fairly common, breeds along the Guadaloupe and its tributaries, also along the Llano and Medina rivers. Took two eggs on May 29, 1907, from a nest on Turtle Creek. The nest hole was about 2½ feet below the top of a little adobe bluff, slanting slightly upwards for about a foot, then turning to the right for about another foot. The burrow was enlarged at the end and the eggs were on a bed of small fish bones and scales, about half a pint of this material.

78. **Dryobates scalaris bairdi.** TEXAS WOODPECKER.— Our commonest woodpecker. Took 4 eggs on April 14, 1902. This bird *drums* on a dead limb of a tree at any time of year, if the weather is fine.

79. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.— Common in winter. Arrives about the middle of October.

80. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.— Shot a male at the ranch on Turtle Creek October 24, 1898. This is the most eastern record for the State.

81. **Phlœotomus pileatus.** PILEATED WOODPECKER.— A large black "Woodcock" used to be seen occasionally many years ago frequenting the tall cypress trees that fringe the Guadaloupe River. From the description it probably belonged to this species. I never saw the bird myself.

82. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— Formerly not uncommon in winter, and possibly once nested in a post oak flat above Kerrville on the Guadaloupe. The trees are all gone now and the place is under cultivation. I have not seen one of the birds for several years.

83. **Melanerpes formicivorus.** ANT-EATING WOODPECKER.— Fairly common in winter in the post oak trees along the Medina-Guadaloupe divide, and breeds. This is considerably the most eastern record for the species.

84. **Centurus aurifrons.** GOLDEN-FRONTED WOODPECKER.— Not very common now, but resident all the year.

85. **Colaptes cafer collaris.** RED-SHAFTED FLICKER.— Common in winter. Earliest autumn record September 20 (twice). I have shot flickers with red and also with black moustaches but have never seen any that were not red under the wings.

86. **Antrostomus carolinensis.** CHUCK-WILLS-WIDOW.— Common breeder; earliest date of arrival April 3; average April 13. Have found fresh eggs April 30.

87. **Antrostomus vociferus.** WHIP-POOR-WILL.— I have only four records for this bird — April 18 and 23, and September 15 and 19.

88. **Phalænoptilus nuttalli.** POOR-WILL.— Common. A few of these birds must sometimes spend the winter with us as I have heard them every month in the year except November. They usually arrive early in February. The latest date of arrival I have (for twenty years) is March 13. I have found eggs as early as March 22.

89. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.— Common breeder. Earliest record, April 12; next earliest, April 23; average, about April 29.

90. **Chætura pelagica.** CHIMNEY SWIFT.— Have only seen them on two occasions, April 29, 1894, and May 8, 1896.

91. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.— Seen every year in April on the buck-eye blooms. I do not think it breeds here but am not quite sure about it. I have never seen a *male* hummer near a nest.

92. **Archilochus alexandri.** BLACK-CHINNED HUMMINGBIRD.— Common. Earliest arrival, March 11; average date of arrival, about March 20. Latest in autumn, October 26. On April 1, 1900, I watched a hummer starting the foundation of her nest; the next day she had nearly finished the wall of the nest and she had it completed by the 6th and was sitting on the 9th of the month. On April 30 I watched her feeding the young ones; the little fellows stretched their necks to the fullest extent and the old bird put her bill full length down their throats. The young had left the nest on the morning of May 11. The male bird never came near the nest. A new nest is frequently built on the top of an old one.

93. **Muscivora forficata.** SCISSOR-TAILED FLYCATCHER.— Common, especially in the valleys. Earliest spring record, March 20 (twice); average, March 25. Latest autumn record, October 17. I have seen a family party of them eating the berries of the poke weed which are here supposed to be poisonous.

94. **Tyrannus tyrannus.** KINGBIRD.— Not very common in the county but a few pairs breed here. Earliest record, April 22; average, April 26. A nest with bird sitting on it, May 16.

95. **Tyrannus melancholicus couchi.** COUCH'S KINGBIRD.— A male shot at the ranch, September 11, 1908, extends greatly the known range of the species in Texas.

96. **Tyrannus verticalis.** ARKANSAS KINGBIRD.— Not uncommon in migration, spring and autumn, though we are at the extreme eastern

limit of the range of the species. Earliest spring record, April 24; latest, June 6. Earliest autumn record, August 30; latest, September 22. It is a very silent bird here and although seen as late as June 6, I do not think it has bred here, at least not near the ranch.

97. **Myiarchus crinitus.** CRESTED FLYCATCHER.— Fairly common in spring and probably breeds.

98. **Myiarchus cinerascens.** ASH-THROATED FLYCATCHER.— Fairly common breeder.

99. **Sayornis phœbe.** PHŒBE.— Common in winter and several pairs usually breed in the bluffs along the creeks. We are close to the extreme southwestern breeding range of the species in Texas.

100. **Sayornis sayus.** SAY'S PHŒBE.— Not common; I have only seven records for it: February 26, March 5, April 7, 13 and 26, and December 11 and 25.

101. **Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER.— Only one record, August 19, 1903.

102. **Myiochanes virens.** WOOD PEWEE.— Common breeder; earliest spring record, April 9; next earliest, April 14; average, April 20.

103. **Empidonax virescens.** ACADIAN FLYCATCHER.— Not very common, but breeds regularly near the ranch. Earliest spring record, April 12; next earliest, April 21; average, April 30. Nests on a horizontal fork of a small branch, a rather neat little saucer-shaped arrangement; one can often see the eggs through the bottom of it.

104. **Pyrocephalus rubinus mexicanus.** VERMILION FLYCATCHER. — I saw a pair of these birds and their nest at a neighbor's house on Turtle Creek on June 8, 1903, and was told that they had already raised one brood that year. They were building again in the same live-oak tree on April 14, 1904. The male bird has a nice little song and sometimes sings when on the wing. This is the most northern breeding record for Texas.

105. **Otocoris alpestris leucolæma.** DESERT HORNED LARK.— I have sometimes seen Horned Larks on an open piece of ground just below Kerrville on the Guadaloupe. They are probably not uncommon along the river valley.

106. **Cyanocitta cristata.** BLUE JAY.— Several flocks of Blue Jays visited us in January and February, 1887. Again in October and November, 1896, they were quite common and remained that winter until as late as April 25, 1897. I have never seen the bird here except on those two occasions.

107. **Aphelocoma texana.** TEXAS JAY.— The type of this species is a bird I sent to Mr. Attwater, killed at the head of the Nueces River when I was deer hunting. These birds are fairly common on the rough hilly land west of Kerrville and breed at the ranch: they nest late in March and early in April and lay 3 to 5 eggs, usually 4.

108. **Corvus cryptoleucus.** WHITE-NECKED RAVEN.— Formerly very common in Kerr County but now quite a rarity. I have counted as many as fifteen at the carcass of a deer that I had killed the day before.

I do not know whether the Crows had anything to do with the fact that the Ravens left us, but the year that the Crows appeared for the first time on Turtle Creek was the last year that the Ravens bred there. Kerr County marked their extreme eastern breeding range in Texas.

109. **Corvus brachyrhynchos.** CROW.— Crows were not uncommon along the Pedernales River in Gillespie County in the early eighties, but I never saw them along the Guadaloupe until February, 1897, when a pair or two took up their abode near Kerrville; since then they have increased and several pairs breed in the neighborhood. They first nested on Turtle Creek in 1898. The last pair of White-necked Ravens nested there in 1897.

110. **Molothrus ater.** COWBIRD.— The form which occurs here commonly in migration and rarely in winter is certainly the eastern bird. Whether our breeding bird is this form or the Dwarf Cowbird (*M. a. obscurus*) has not yet been determined.

111. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.— Common migrant in April; occasional in the autumn.

112. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.— Occasionally in large flocks in February, March and April; sometimes I do not see it all the winter. I know of no nesting place nearer than San Antonio.

113. **Sturnella magna.** MEADOWLARK.— Common winter resident.

114. **Sturnella neglecta.** WESTERN MEADOWLARK.— Common in winter, but I have not known them to nest here.

115. **Icterus spurius.** ORCHARD ORIOLE.— Quite common breeder; earliest record, April 13; average, April 17. One of the most regular of our birds in its times of arrival.

116. **Icterus galbula.** BALTIMORE ORIOLE.— A fine male and three females or young birds came to the ranch on September 9, 1908. I have only seen it here on one other occasion.

117. **Icterus bullocki.** BULLOCK'S ORIOLE.— Not uncommon among the mesquites in the northwest corner of the county, and breeds there; have seen it only twice in the neighborhood of Kerrville.

118. **Euphagus cyanocephalus.** BREWER'S BLACKBIRD.— Common in winter.

119. **Hesperiphona vespertina** subsp.? EVENING GROSBEAK.— Seen once, January 31, 1905. This is the only record of the species for Texas and unfortunately there can be no certainty as to the subspecies. But since the known range of the western form, *montana*, is much nearer than the district where the eastern form usually winters, the probabilities are strongly in favor of the western bird.

120. **Astragalinus tristis.** GOLDFINCH.— Common in winter; leaves us just as the males begin to put on their summer plumage, usually about the first week in March.

121. **Astragalinus psaltria.** ARKANSAS GOLDFINCH.— Nests quite commonly in the pecan and walnut trees at the ranch, often quite close to the house: there are usually four eggs in the nests somewhere about the first week in June. Earliest spring record, March 29; next earliest,

April 18; average, April 28. Leaves about middle of October; latest record, November 9.

122. **Spinus pinus.** SISKIN.— Occasional in flocks in winter and spring, November 28 to May 29.

123. **Calcarius ornatus.** CHESTNUT-COLLARED LONGSPUR.— Fairly common in the wider valleys and open places on the divide in winter and spring.

124. **Pœcetes gramineus confinis.** WESTERN VESPER SPARROW.— A common bird by the roadsides in winter; arrives about October 22.

125. **Passerculus sandwichensis alaudinus.** WESTERN SAVANNAH SPARROW.— Not at all common migrant at the ranch.

126. **Ammodramus savannarum bimaculatus.** WESTERN GRASSHOPPER SPARROW.— Probably fairly common in the open parts of the county in winter. I have shot them on two or three occasions when quail hunting; a young dog will nearly always point them.

127. **Chondestes grammacus strigatus.** WESTERN LARK SPARROW.— Very common in summer and occasionally seen in midwinter. Average date of arrival, March 12.

128. **Zonotrichia querula.** HARRIS'S SPARROW.— Occasional in winter but not common.

129. **Zonotrichia leucophrys.** WHITE-CROWNED SPARROW.— Common in spring. Have seen it on October 29 and in February. It is commonest in March. Latest seen April 24.

130. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.— My only record is that of a pair seen March 16, 1907.

131. **Spizella passerina.** CHIPPING SPARROW.— Common in winter and a few pairs regularly breed in the Kerrville neighborhood. Have twice taken eggs at the ranch. The breeding bird is the eastern form, here finding its western limit in Texas. The winter birds undoubtedly include individuals of the Western Chipping Sparrow (*Spizella passerina arizonæ*).

132. **Spizella pallida.** CLAY-COLORED SPARROW.— Small flocks frequently visit us during March and April. Have seen it as late as April 24.

133. **Spizella pusilla.** FIELD SPARROW.— Common resident.

134. **Junco hyemalis.** SLATE-COLORED JUNCO.— Snowbirds are common in winter. Earliest date of arrival, October 30; average, November 8.

135. **Amphispiza bilineata.** BLACK-THROATED SPARROW.— Not common: I have not seen it in the Guadaloupe valley, but it breeds in the mesquite flats on the heads of the Llano River, in the northwestern corner of the County.

136. **Peucæa cassini.** CASSIN'S SPARROW.— A few pairs used to nest in the Turtle Creek valley, but have not done so for the last year or two. The species is fairly common in summer on the opener parts of the Guadaloupe-Llano divide. Its cheery little song is unlike anything else, and once heard can never be forgotten.

137. **Aimophila ruficeps eremœca.** ROCK SPARROW.— Rather common resident of the brush covered hills. Eggs three to five; have found them early in April and late in June, so the bird probably raises two broods.

138. **Melospiza melodia.** SONG SPARROW.— Not very common. A few winter along the little creek that flows by the ranch house.

139. **Melospiza lincolni.** LINCOLN'S SPARROW.— A common winter resident at the ranch. Earliest autumn record, September 23; average, October 10. Have seen it as late as May 15. It sometimes sings in a tentative sort of way just before leaving us.

140. **Passerella iliaca.** FOX SPARROW.— A not very common winter visitor in the valley thickets.

141. **Pipilo maculatus arcticus.** ARCTIC TOWHEE.— A common winter resident in the brush, both on the hills and in the valleys. Earliest autumn record, October 6; average, about October 15; stays with us until the middle of May.

142. **Pipilo fuscus mesoleucus.** CAÑON TOWHEE.— Rather rare in the neighborhood of Kerrville but breeds, at least occasionally, on Turtle Creek; quite common in the northwestern corner of Kerr County reaching here its most eastern extension in Texas.

143. **Cardinalis cardinalis canicaudus.** GRAY-TAILED CARDINAL. — Quite common resident.

144. **Zamelodia melanocephala.** BLACK-HEADED GROSBEAK.— Only seen once; a fine male, May 6, 1907, the most southeastern record for Texas.

145. **Guiraca cærulea lazula.** WESTERN BLUE GROSBEAK.— Quite common in summer and breeds at the ranch. Earliest spring record, April 12; average, April 18. I fancy the males arrive a few days ahead of the females; have seen a flock of five males at least a week before a female appeared.

146. **Passerina cyanea.** INDIGO BUNTING.— Fairly common and breeds at the ranch. Earliest spring record, April 10; latest, April 30; average, April 20. It finds here the southwestern limit of its breeding range.

147. **Passerina amœna.** LAZULI BUNTING.— Rather rare. A few pairs have occasionally bred at the ranch. Earliest spring record, April 23; average, April 24. Nests with four eggs May 15 and May 26. This is the most eastern breeding record for Texas though it has been taken in migration east nearly to San Antonio.

148. **Passerina ciris.** PAINTED BUNTING.— Common at Kerrville and along the Guadaloupe Valley. Not quite so common at the ranch. Earliest record, April 23. It is one of the earliest birds to leave us in the fall.

149. **Spiza americana.** DICKCISSEL.— Fairly common during the spring migration. If we have plenty of spring rains it stays with us a few weeks; if dry it passes on overhead. Earliest record, April 23; latest, May 23. Probably used to breed here formerly.

150. **Calamospiza melanocorys.** LARK BUNTING.— Not uncommon in the valleys and open places in the spring. Have seen it as late as May 3.

151. **Piranga rubra.** SUMMER TANAGER.— Common breeder. Very regular in its appearance in the spring. I have seventeen records of spring arrival, varying from April 11 (four times), to April 15 (three times); average, April 12. Many years ago a boy at the ranch amused himself by killing these birds that were decimating the bees belonging to a few bee-stands in the yard; he shot some six or seven birds and among them one female considerably larger than any of the others.

152. **Progne subis.** PURPLE MARTIN.— Not so common as it was years ago. Twenty years' records, earliest, February 11; average, February 20. Leaves as a rule during late July or the first week in August, latest seen August 25.

153. **Petrochelidon lunifrons.** CLIFF SWALLOW.— Breeds in large colonies on many of the bluffs along the rivers and creeks and tries to build on the rock buildings in Kerrville but meets with no encouragement. I see them at their breeding places about the middle of April; they leave us early in August.

154. **Hirundo erythrogastra.** BARN SWALLOW.— Rather rare; I do not often see it; quite a number of years ago a pair nested under the porch of a house in Kerrville.

155. **Bombycilla cedrorum.** CEDAR WAXWING.— Quite common in winter and usually stays around Kerrville until it has eaten all the mulberries in the gardens there. Usually arrives about November 1; earliest record, October 19; latest, May 23.

156. **Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE. — Not uncommon in winter. Breeds on the divide between Guadaloupe and Pedernales rivers. Have not found it breeding south of the Guadaloupe River. It comes to us early in August.

157. **Vireosylva olivacea.** RED-EYED VIREO.— Common breeder. Earliest spring record, March 25; next earliest, March 30; average, April 12.

158. **Lanivireo flavifrons.** YELLOW-THROATED VIREO.— Not uncommon; breeds at the ranch. Earliest record, March 15; average March 24. This is at the extreme southwestern limit of the breeding range.

159. **Lanivireo solitarius.** BLUE-HEADED VIREO.— Rare in spring migration; April 20 and May 9.

160. **Vireo atricapillus.** BLACK-CAPPED VIREO.— Not uncommon; several pairs usually breed at the ranch. I fancy, however, that the bird is not so common as it was a few years ago. Earliest record, March 19; average, March 24. I have several times found the nests early in May, containing three eggs as a rule, and situated 2–5 feet from the ground.

161. **Vireo griseus.** WHITE-EYED VIREO.— Very common breeder. Earliest record March 6; average date of arrival, March 16.

162. **Vireo belli.** BELL'S VIREO.— Rather rare in the neighborhood of Kerrville, but quite common in the mesquites on the banks of the

Llano River in the northwestern corner of the County. I have records at the ranch for April 19 and 28, May 5 and August 20.

163. **Mniotilta varia.** BLACK AND WHITE WARBLER.— Not uncommon and breeds with us; I see it feeding young every year — one of these times was June 10, 1897 — but have not found a nest. Earliest record, March 5; average, March 11. Latest record September 26.

164. **Vermivora rubricapilla.** NASHVILLE WARBLER.— Not uncommon in late April and early May.

165. **Vermivora celata.** ORANGE-CROWNED WARBLER.— Flocks of small warblers, principally of this species, pass through the woods from late in March until the end of April. I have several times picked up dead ones after a hail storm.

166. **Compsothlypis americana usneæ.** NORTHERN PARULA WARBLER.— A common summer resident at the ranch: nests in hanging tufts of tree moss. Earliest record, March 9; next earliest, March 15; average, March 21. On April 22, 1907, I picked up three dead young birds under a nest, after a cold rain; they would have been able to fly in a few days.

167. **Dendroica æstiva.** YELLOW WARBLER.— Fairly common in migration, both spring and autumn. Earliest record, April 18; next earliest, May 2; average, May 5. Have seen it back again as early as August 18.

168. **Dendroica coronata.** MYRTLE WARBLER.— Frequently spends the winter with us: leaves at the end of April, by which time it is in full summer plumage and may often be heard singing. Latest record, April 28.

169. **Dendroica dominica albilora.** SYCAMORE WARBLER.— Frequents the tall cypress trees of the Guadaloupe valley, and breeds there in some numbers, though this is at the extreme southwestern limit of the breeding range. Earliest spring record, March 18; average, March 22.

170. **Dendroica chrysoparia.** GOLDEN-CHEEKED WARBLER.— About as common as any warbler in the county. Earliest spring record, March 5; average, March 12. Usually has eggs in the nests during the first week in April; have seen young birds out of the nest by April 22: have also found eggs in May, so the bird may be double-brooded. Nests usually perhaps in cedar, but have often found them in oak and walnut trees. Early in July the woods are full of family parties; as a rule they are all gone before August 1. Have only seen the bird two or three times after that date. Latest records, August 20 (once), August 10 (once).

171. **Dendroica virens.** BLACK-THROATED GREEN WARBLER.— Rather rare; the few I have seen have been observed between May 7 and 15.

172. **Seiurus noveboracensis notabilis.** GRINNELL'S WATER-THRUSH.— Once at the ranch, on May 10, 1895.

173. **Seiurus motacilla.** LOUISIANA WATER-THRUSH.— Not common migrant. Have seen it March 18–26, also May 3, and two or three times in the autumn.

174. **Oporornis formosus.** KENTUCKY WARBLER.— Rather com-

mon in the river and creek bottoms. Earliest spring record, April 10 (twice); average, April 15. Have found the nest on several occasions, one with four fresh eggs on May 7. This is the most southwestern breeding record of the species.

175. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.— Not very uncommon in migration; have seen it from April 29 to May 15.

176. **Icteria virens.** YELLOW-BREASTED CHAT.— Very common all the summer. Earliest record, April 9 (twice); average, April 13. Earliest nest with fresh eggs, May 6. Reaches here the western limit of its range in Texas.

177. **Setophaga ruticilla.** REDSTART.— Rare, at the ranch; May 2 and September 15 and 26 are my only dates.

178. **Anthus rubescens.** PIPIT.— Common in the fields all the winter.

179. **Oreoscoptes montanus.** SAGE THRASHER.— See a few every winter and at times they are quite common.

180. **Mimus polyglottos leucopterus.** WESTERN MOCKINGBIRD.— Common all the year.

181. **Dumetella carolinensis.** CATBIRD.— Only seen twice by me, September 8 and October 17. Mr. Vernon Bailey saw one here on May 5, 1899.

182. **Toxostoma rufum.** BROWN THRASHER.— Only seen twice; February 10 and March 5, 1899: on the latter occasion I saw three birds together. This is the most southwestern record of the species.

183. **Salpinctes obsoletus.** ROCK WREN.— Not very common, but sometimes breeds at the ranch.

184. **Catherpes mexicanus conspersus.** CAÑON WREN.— Common along the bluffs of the river and creeks, and occasionally seen round the rock buildings in Kerrville. For two years a pair lived with us in the ranch house and became very tame, hopping about the floor and even singing on the table while we were in the room. They nested over one of the windows.

185. **Thryothorus ludovicianus.** CAROLINA WREN.— Common resident. This bird also has nested and reared its young in the house on two or three occasions.

186. **Thryomanes bewicki cryptus.** TEXAS WREN.— Another very common bird; we have a nest or two every year under the "gallery." I have twice found nests built in the skull of a dead cow.

187. **Troglodytes aëdon parkmani.** WESTERN HOUSE WREN.— Occasional in winter and spring. It does not breed with us.

188. **Telmatodytes palustris iliacus.** PRAIRIE MARSH WREN.— Some years ago I frequently saw some of these birds in a rushy piece of ground on Turtle Creek. The rushes have gone and the birds with them. I have seen them on Feb. 12 and May 4. I do not think that they bred there.

189. **Certhia familiaris americana.** BROWN CREEPER.— Not very common. I see a bird or two nearly every winter.

190. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.— The bird is not common here, but I have seen it when on hunting trips in November among the post oak trees at the head of Turtle Creek and along the Medina-Guadaloupe divide.

191. **Bæolophus atricristatus sennetti.** SENNETT'S TITMOUSE.— Quite common resident.

192. **Penthestes carolinensis agilis.** PLUMBEOUS CHICKADEE.— Common resident. This is nearly its extreme southwestern limit.

193. **Auriparus flaviceps.** VERDIN.— Not seen at Kerrville, but have seen it and its nest close to the line between Kerr and Kimble counties, northwest from Kerrville, where it finds the northern limit of its range.

194. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.— Not common, but occasionally seen in small flocks in winter.

195. **Regulus calendula.** RUBY-CROWNED KINGLET.— Common in winter. Earliest record, October 2. Stays with us until early in May. I never saw this bird in small flocks like *satrapa*, but always singly or in pairs.

196. **Polioptila cærulea.** BLUE-GRAY GNATCATCHER.— Common and breeds throughout the county. Earliest date of arrival, March 13; average, March 17. They begin nesting almost as soon as they get here; I have found nests in course of construction on March 30 and with eggs in them as early as April 4.

197. **Myadestes townsendi.** TOWNSEND'S SOLITAIRE.— A rare bird here as a rule, and I had seen only two or three specimens of it until 1905, when it was quite common at the ranch from January 26 until April 25. This was the first record of their being seen in numbers so far south in Texas. There was a great quantity of cedar mast that year. They appeared here again on November 2, 1910, and are fairly common at the time of writing this note, January 25, 1911. There are plenty of cedar berries again this season.

198. **Hylocichla guttata** subsp.? HERMIT THRUSH.— At least two and probably three subspecies of this bird are common here in winter.

199. **Planesticus migratorius.** ROBIN.— Common in winter especially when there are many berries. A few winters ago these birds did good service by picking up the army worms that were destroying the young grain crops. They usually arrive about the first of November and stay until April; latest date, April 21. They sing here all the winter when the weather is mild.

200. **Sialia sialis.** BLUEBIRD.— Common and breeds here; nests with eggs early in April; much more numerous in winter than in summer.

201. **Sialia currucoides.** MOUNTAIN BLUEBIRD.— About three times since I have been living here this bird has been fairly common in the winter, otherwise we never see it: it goes about in larger flocks than *sialis* does. We are here near the eastern limit of the range of the species in Texas.

202. **Passer domesticus.** ENGLISH SPARROW.— In 1882 we saw the English Sparrows at Galveston and Houston. They came to Kerrville on December 12, 1897, and came to stay. They nested at the ranch for the first time in 1909, but were often here in the winter long before then.

## A DROP OF FOUR THOUSAND FEET.

BY FLORENCE MERRIAM BAILEY.

OUR last mountain camp of the field season of 1906 was at 8500 feet in the New Mexico Mogollons. Even in New Mexico an 8500 foot camp after the middle of October is apt to be a trifle chilly, so we pitched our tents on the warm slope of the cañon under the yellow pines, laying logs against the outside walls of the tents to keep out the wind, and noting with satisfaction that there was abundant fuel close at hand for big camp fires. A few rods below the tents Willow Creek — a clear sparkling mountain brook that heads the middle fork of the Gila — ran at the foot of a handsome fir and spruce wall whose crest at sunset caught the last yellow light slanting across the forest.

In the morning when the sun reached the trees in front of the tent small voices would be heard and a flock of hardy mountaineers — Chickadees, Pygmy Nuthatches, and Brown Creepers — would fly in filling the air with their gentle talk. Beyond camp up the narrow winding gulch of Willow Creek along which was kept a line of small mammal traps, in the sunny bends of a morning Chestnut-backed Bluebirds and Audubon Warblers would fly before us and flocks of Juncos rise with a startled twitter and a flash of white outer tail feathers. Some of the Juncos when flying showed a band of pink along the sides and, as was proved when our specimens reached the Biological Survey, representatives of nearly every resident, migrant, or wandering Junco of those mountains, including the Slate-colored, Intermediate, Montana, Pink-sided, Ridgway's, and the Gray-headed, had gathered in that particular gulch or its neighborhood on the

approach of winter. It was such good hunting ground that a Sharp-shinned Hawk was taking advantage of it.

A Dusky Grouse had been seen on the way into the mountains, recently made tracks were discovered on the bank of Willow Creek, and fresh sign was found later on the ridges above; but most of the birds had probably been killed off by the summer hunting. The Wild Turkeys that were left in the mountains doubtless went below to escape the storms for no tracks were seen except when we first reached Willow Creek, and some prospectors who came up the Gila told us that they had encountered a large number below, including bronze-colored gobblers.

Well protected by their fur coats, small mammals were plentiful. Twenty-four specimens were found in the line of traps along the gulch one morning, including a shrew, and various small mice and wood rats; while saucy red squirrels scolded us from the evergreen tops over the brook, and one day when camp was quiet two handsome gray Abert squirrels with long winter ear tufts chased each other around and around a yellow pine trunk.

Attracted perhaps by the abundance of small mammals were several hawks and owls — a Sparrow Hawk, three Red-tails, one a very black melanistic bird, a Pygmy Owl, and a pair of Spotted Owls. The Spotted Owls apparently made their home in the firs and spruces on the wall of Willow Creek, for their curious varied calls were heard at camp nearly every night, often just at daybreak, and once before dark; so different from the Horned Owl that it was noticed by the camp man. "He's not the owl that makes that hootin' noise?" the puzzled listener asked. On moonlight nights the two birds were heard answering each other, a soft conversational *who-who-who-who-who-who-who*, being replied to by a sharp *wheck-wheck-wheck-wheck-wheck*. One of the commonest calls was a short bark, and another was *who-who-whoo'* the last *whoo* brought out with great emphasis. When some new calls from the varied repertoire of Strix were heard, the man looked up. "That aint the kind o' tune he played the other night, is it?" he asked, and then as the concert continued — "What makes him make such a noise? I should think he'd scare away all his game."

In the day time flocks of striped Pine Siskins — on two days a band of probably a hundred birds — wandered up and down the

creek, now in a compact flock, now straggling out; stopping to visit the cone-laden spruce tops, then going on to the alders where, bending over the little cones they showed their yellow wing bands, then up and away giving their lovely eolian call on the wing. The unmistakable welcome notes of a flock of Crossbills were also heard in the cañon.

Robins, Ruby Kinglets, Long-crested Jays, and a number of Woodpeckers were seen in the region. Borings apparently of the Pileated were found in the timber from 8500 to 9600 feet, and the Alpine Three-toed Woodpecker was found at 10,500 feet. At about 11,000 feet a Cassin's Finch was shot.

While we were absorbed in watching the birds and beasts of the cañon, heavy winds and black clouds gathering around the mountain tops were followed by snow, and a Clarke's Crow came down from the peaks to the tree tops above camp. The next morning ice was an inch thick on the water pail, and in the cold dark cañon one pool was frozen so deep that it held the weight of a man. By some open water an Ouzel stood on a stone with its feathers fluffed up. But though looking cold it flew down into the water, hopped out onto a cake of ice and stood there as unconcernedly as if on a sun-warmed rock.

More snow fell and it kept getting colder till on the morning of the twenty-fourth of October — the day after the last thrush was seen — the mercury stood at 14° Fahr. by our camp thermometer which registered so little below that the temperature was probably nearer zero. That day Mr. Bailey ran a zone line to the top of the 11,000 foot peak above us, and saw white-tailed deer and followed tracks of a mountain lion through the snow. Down in camp it was cold work writing up notes even with big logs blazing in front of the tent.

When the snowstorms had cleared the sky we had glorious days. The air was as clean and strong as on a mountain top and the sky such a deep dark blue it was hard to keep one's eyes on the ground. At night in the evergreen openings, the moonlight on the snow was doubly good to look at in New Mexico, and revived memories of beautiful white northern winters.

But soon a second storm began gathering around the peaks, black clouds hanging low over them and wind whistling through the

spruces. If we stayed till the storm came we might get snowed in. It was now the last of October and the Forest Ranger at Mogollon had said that it was "generally hard to get in or out of this country after the first of November," that sometimes the snow was seven feet deep here. To provide against trouble he had given us the key to a cabin two miles below that held emergency supplies, but we were not prepared for winter and having no snowshoes, if caught by a storm might have to wade seventeen miles through the snow. We decided to go out while we could drive out!

Breaking camp in a cold rain we climbed 500 feet up a steep wet trail to the top of the cañon and the wagon road; and the next morning after driving across long miles of a road recognized as fit only for pack trains, went down 2600 feet on a steep slippery lumber grade to the mining town of Mogollon near which we spent the night; the following morning climbing up 450 feet, and then dropping down the 1500 foot Mogollon grade across the rocky face of the bare southwest slope of the mountains — a striking contrast to the heavily-timbered northeast slope from which we had come — we finally reached the stage station of Glenwood at the junction of White Water Creek with the San Francisco River.

We had come down 4000 feet in twenty-eight hours, from 9000 feet at the top of Willow Creek Cañon to 5000 feet at the foot of the Mogollon Mountains. After rattling down the cold mountain grades we were glad to camp here for a few days work, pitching our tents in a little amphitheater that was warm and still, and filled with sunny nut pines and junipers. Bordering the river below us were glistening live oaks and broad-leafed cottonwoods that glowed with a lovely languorous yellow in the warm afternoon sunshine while cobwebs floated on the quiet air and the gentle voices of lowland Quail made sweet music. Looking back up the Mogollons, storm clouds shrouding the peaks made us thankful that we had escaped in time. It was pleasanter to sit safe and warm below and watch the pink sunset light on the mountains than to be wading in seven feet of snow!

"The grasshoppers are squeaking up on the hill!" some one called out, and after a moment, the camp man's deliberate voice responded dryly — "We did n't hear many over on *Willow Crick*!"

From listening to Spotted Owls barking from the moonlit firs

and spruces of the snow-covered Canadian cañon above we now listened to Sonoran Bush-tits and Gambel's Quail among the nut pines and junipers. A flock of the Quail roosted not far from our tent in the protected amphitheater and when gathering in and getting settled at dusk, above the variously accented calls rose one in anxious high-pitched tones drolly like a distracted voice calling *Where-are-you-'now? Where-are-you'-now?* Soon after daylight, hearing small voices approaching and raising our heads from our sleeping bags we saw an advancing procession of the plump Quail with recurved top knots over their bills, their black throats and buffy belly patches conspicuous as they faced us. On they came, talking in low tones, but suddenly a warning *tut, tut,* interrupted their conversation. They had discovered the cook at his camp fire! A few steps more and they stopped, standing in two pretty squads under the junipers.

Just over the bank another flock of about twenty-five Quail were flushed from a field bordering the San Francisco, the Rio San Francisco which we had forded fifty-two times in one cañon a few weeks before! Following up the banks of the river we found Meadowlarks, Killdeer, and Ravens, and spoke with an old hunter going to a pond back of the dam for Teal; but then we came to a cañon where the swift stream with its usual disregard of travelers was swinging against one and then the other of its sheer walls, so we turned off into a dry gulch. The gulch proved to be richly wooded with sycamore, ash, box elder, cottonwood, mulberry, live oak, and soapberry, and was so full of birds that it was hard to leave. There were Woodhouse Jays squawking, a little Texas Woodpecker with barred back giving its shrill call as it drilled on the oaks, Audubon Warblers jerking out their sharp *tchack'*, Gray Titmice whistling, and fascinating little Bridled Titmice flitting about the trees singing a tinkling Chickadee song; while invisible Cañon Towhees, Rock Wrens, and a Scott Sparrow kept us peering up the stony banks of the gulch. On a mesquite flat above the gulch Pipits from the peaks were seen.

We had left the snowy Canadian mountains deserted by all but a few of the hardier birds and by our 4000 foot drop, paralleling the vertical migration, had come down into the warm Sonoran valley where the weeds were still full of seeds and the trees of

berries, and birds were gathered in happy throngs. They were everywhere. The air was full of their calls and fall songs, and wherever you went, from weed, bush, and tree they flew before you. The weed patches were rustling with Juncos, Chewinks, and Sparrows, Song and White-crowns — no White-crowns had been seen on Willow Creek after the first snowstorm and only one Song Sparrow had been heard. The junipers and nut pines were full of talkative Bush-tits, chattering Ruby Kinglets sometimes giving a snatch of song, and House Finches and Bewick Wrens singing gaily — what a clear loud ringing song the Wren has! Bluebirds (*bairdi*) were seen on all sides. There were Robins, Mourning Doves, Flickers, Horned Larks, Say's Phœbe, Cañon Wrens, flocks of Goldfinches and Redwings, and a variety of Hawks — Red-tailed, Sparrow, Sharp-shinned, and Marsh — while Solitaires whistled a clear one-syllabled *hip, hip, hip,* and on warm days gave their full fall song. Brown Creepers were seen 3500 feet lower than they had been noted a few days before, and one was actually found on a Lower Sonoran mesquite instead of his native Canadian fir and spruce. A small flock of Siskins also reminded us of Willow Creek, but instead of cone seeds they were eating sunflower seeds.

Ignorant of the fact that most of the birds had left the mountains, a boy whom we saw was planning a hunting trip to them with a freighter. He was going to take one burro just for ammunition, he boasted, for he shot everything he saw down to snowbirds!

On the freight road our attention was attracted to a dooryard with a flagpole flying an American flag — unusual in rural New Mexico — and still more surprising, two stuffed White-faced Glossy Ibises perched on the fence! Inside the house we were pleased to find a family of Germans. The Ibises, together with a Blue Heron which stood on the parlor mantelpiece, had been shot along the river — which added to our list of valley species. The apologetic taxidermist said the birds were so handsome she wanted to save them, and having nothing better had put them up with tobacco and camphor gum, making eyes for the Ibises with black buttons and yellow satin!

At the next stage station, Lee's Station, a ranch just below the juniper and nut pine slopes of the mountains to which the Wild

Turkeys come, the old man Lee who kept tame turkeys told us of an amusing experience he had had the previous night. He had gone up the gulch back of his house and while there had seen an old gobbler, and thought he'd drive him home. But when approached the turkey ran away from home — and when chased got up and flew! Surprised at this strange behaviour the old man went on down to the ranch. Passing his hen house he looked in and — there was his gobbler inside! Perhaps the turkey he had chased was one whose tracks we had seen on Willow Creek!

## NOTES ON THE FRUIT-EATING HABITS OF THE SAGE THRASHER IN THE YAKIMA VALLLEY.

BY CLARENCE HAMILTON KENNEDY.

THE broad sage-covered stretches of the lower Yakima Valley, with the barren hills enclosing it, lie in the Transition and Upper Sonoran Zones. Only a narrow strip a few miles wide down the center of the valley has been reclaimed by irrigation and the brown desert displaced by green fields and orchards.

It is in this sage brush land above the irrigated area that the Sage Thrashers (*Oreoscoptes montanus*), after arriving in the spring, nest and live until the young are capable of extended flight. During the nesting period they are the best singers of any of the sage brush inhabitants. They are also the most wary, for seldom can a person on foot approach one nearer than fifty yards.

During the latter half of May, families of Sage Thrashers drift down into the irrigated ranches and begin their season of fruit-eating with the black-cap raspberries, which are then beginning to ripen. By this time the young, though still associating with the older birds, are capable of searching out their own food. With this independence of the young, the habits of the Sage Thrashers change very markedly. After this the snatches of whimsical song are rarely heard. From birds with a burst of song after every

short flight they change to the most silent of birds. During the entire summer's observation I have heard no call of any kind and on but two occasions during this period have I heard a short burst of song. Their shyness also leaves them. They become as approachable as Robins in an eastern dooryard. They will sit and without fear eat berries within a few feet of pickers.

Immediately following the raspberries come the blackberries. Both are devoured with equal readiness. Sour red berries are eaten as readily as the riper black ones. The berries are eaten

1 2 3

Fig. 1. A perfect bunch of Campbell's Early grapes.
" 2. Campbell's Early damaged by Sage Thrashers.
" 3. A damaged cluster after having been trimmed.

whole and because of their size many of those picked off fall to the ground and are lost. After the blackberry season there is a period of two or three weeks when no small fruits are ripe. During this time the Thrashers stay about the ranches but content themselves with an insect diet.

At the end of this interim, the latter part of July, the early grapes begin to color. At first they pass unnoticed but by the time one half of the clusters are purple the Thrashers have commenced to peck them. Usually they break the skin and sip the juice but occasionally a grape is eaten whole. After the feeding on grapes commences the vineyard is never free from Thrashers, which fly

up from the vines to near posts and silently watch any intruder. While during the earlier summer they flock in what are probably family groups, during the latter part of the summer no flocking occurs, though as many as a dozen individuals may be seen in the vineyard at one time, which on being driven out fly each in a different direction.

On this ranch there are 140 vines of Campbell's Early. The actual loss in weight of grapes through bird damage was 25 %, but the loss in profits was not less than 50 % because of the large item of labor in trimming damaged clusters, and the loss in fancy value through the unattractive appearance of the trimmed bunches (Figs. 1–3). By September 1 the Campbell's Early were gone, and the Thrashers began to eat the foreign (*Vitis vinifera*) grapes in a mixed vineyard, the black varieties of which were beginning to color. The black varieties, Black Hamburg, Cornichou and Ramonia were damaged, as was also the Flame Tokay, a red grape. At no time did the birds injure any green or yellowish varieties, for among the *vinifera* varieties the Muscat, Malaga and Thompson's Seedless were untouched, while among the domestic varieties, the green-colored Moore's Diamond and Niagara were uninjured. Of red grapes the foreign Flame Tokays were damaged some just after coloring and while yet sour, but the red honey-like Delawares were untouched. The 140 vines of Campbell's Early, which were so badly damaged, were in the center of four acres of Concord grapes, which were entirely untouched. The explanation of this seems to be that the Thrashers prefer a grape with the two characteristics, a dark color and sourness. Concord grapes lose their acidity on first turning color, while Campbell's Early have a sprightly sub-acid flavor until fully ripe. Furthermore the red Flame Tokays were unmolested after they had ripened to sweetness.

Ten stomachs were examined with the following results:—

| | Fruit in Stomach | Insects in Stomach |
|---|---|---|
| [1]1 | Grape pulp, skin, 2 seeds | 1 locust |
| 2 | Grape pulp, skin, 4 seeds | 1 large beetle, numerous ants |
| 3 | Grape pulp, ——, 4 seeds | |
| 4 | Grape pulp, skin, 2 seeds | |
| 5 | Grape skin | 1 locust, 3 ants, remains of other ants |

[1] Nos. 1–5 killed Aug. 20, 10 A. M. to 3 P. M.;

| | Fruit in Stomach | Insects in Stomach |
|---|---|---|
| [1]6 | 2 Grape skins, 1 seed | 1 beetle |
| 7 | Grape skin, Chinese lettuce seed | |
| 8 | Grape skin | 1 ant |
| 9 | Grape skin, 3 seeds | 1 beetle, 2 ants |
| 10 | Grape skin, 1 seed and mountain ash berry | |

Thinking that the Sage Thrashers' preference for sour tastes might extend to their insect diet, locusts and ants were tasted. A locust infusion had a delicate and suprisingly pleasant flavor but without a trace of sourness, while the ants had a flavor almost identical with that of castor oil.

The Thrashers taken on August 20 were in the midst of moult, while those taken on September 2 were nearly through moulting. A severe gale (sand storm) occurred on September 14. On September 15 small flocks of Thrashers were seen in roadside weed patches (an unusual place to find Thrashers), after which none were seen except one lone Thrasher seen in the vineyard two diff. rent days in November.

The Thrashers were assisted to some extent in their depredations on the early grapes by Bullock's Orioles. After the Thrashers had left for the south, Robins, while flocking preparatory to migrating, injured the very late grapes.

Sunnyside, Wash.

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[1] Nos. 6–10 killed Sept. 2, 6:30 A. M.

# NOTES ON SOME SUMMER AND FALL BIRDS OF THE CROOKED LAKE REGION, CASS AND CROW WING COUNTIES, MINN.

BY ALBERT W. HONYWILL, JR.

THE birds in the following list were observed during portions of four summers, spent at a camp on Crooked Lake, in what is known as the "Lake Region of Minnesota." The notes cover the following periods: from July 11 to September 8, 1907; July 11 to August 30, 1908; July 17 to August 30, 1909; and July 19 to August 30, 1910.

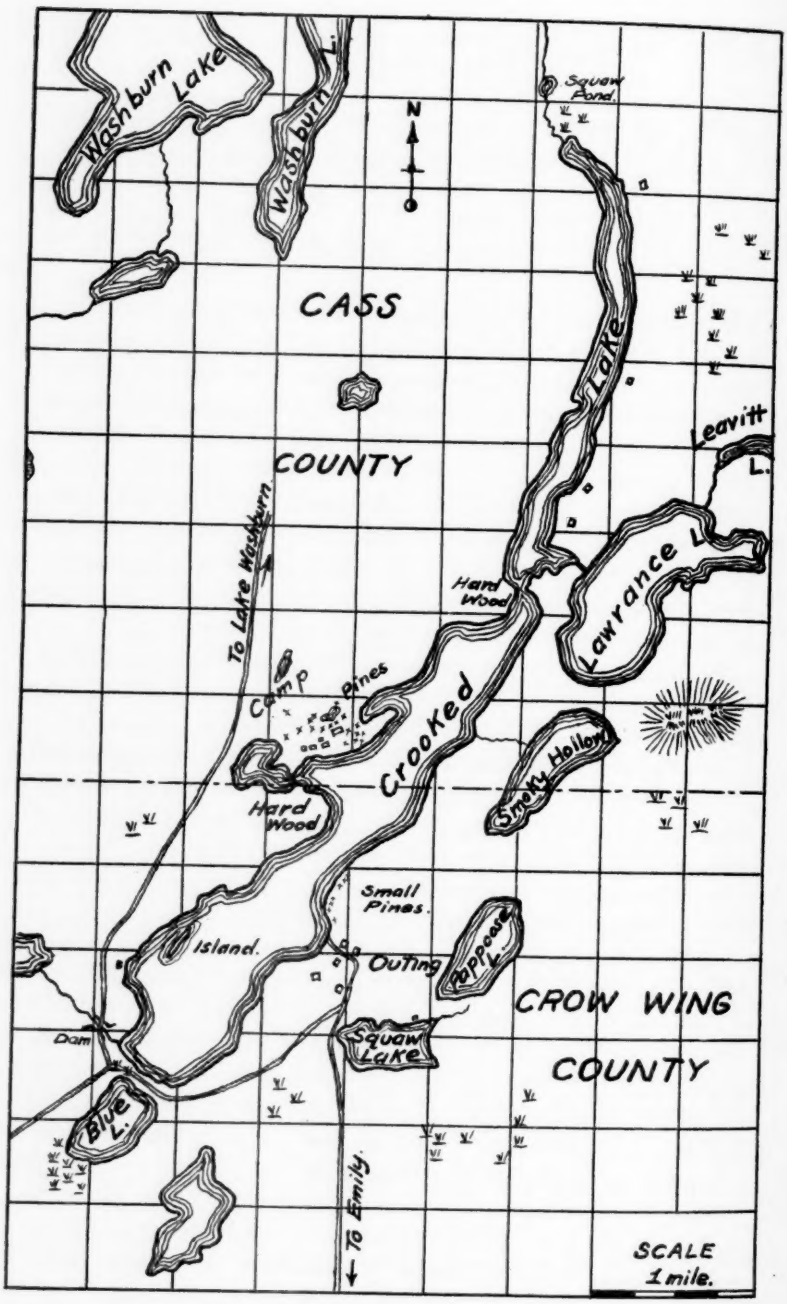
The list is not presented as a complete list of the summer birds of the region described, but it is hoped that some of the notes may prove of interest as covering an area whose avifauna has changed greatly in the last twenty-five years, and is likely to undergo still further change as it is settled and opened up to farming.

Many of the birds were observed while on fishing trips and during walks to Emily, a small town located about four miles south of Crooked Lake. A daily bird record was kept.

The region described contains a large number of lakes, many of which are of considerable size. Crooked Lake is a long narrow lake about six and a half miles in length. The upper half narrows down until it appears more like a wide river than a lake. Several other lakes empty into Crooked, the largest of which is known as Lawrence Lake, and is perhaps two miles long.

The land in this region was formerly covered with a thick growth of pine, largely Norway and white pine, but this was steadily cut off until about ten years ago, when the last tract of timber of any size was cut. Most of the land has since grown up to white birch, scrub oak, and poplar. Almost every fall portions of the country are burned over by forest fires, so that although in some places the timber was cut twenty-five years ago, there is no growth of any size save for an occasional patch of original hardwood forest.

The camp mentioned above is located near the shore, on a cove or bay on the west of Crooked Lake. A small grove of Norway pine, perhaps five acres in extent surrounds the camp. These




MAP OF THE CROOKED LAKE REGION

pines were purchased from the lumber interests a number of years ago, and are the only pines of any size in the vicinity. Across from the camp, on the other side of the cove, is a small hardwood forest containing many fine old birches. Directly west of the camp, for several miles, the country has grown up to brush.

Along the road from the little town of Outing, located on the east bank of Crooked Lake, to Emily, small portions of the land are under cultivation, and more is being cleared.

Nests containing eggs or young of the following species were found: Spotted Sandpiper, Chimney Swift, Kingbird, Phœbe, Goldfinch, Chipping Sparrow, Song Sparrow, Purple Martin, Cedar Waxwing, Catbird, House Wren, and Robin.

From my daily list I find that an average of about 17 species were seen each day, the greatest number being 35 seen on July 14, 1908.

Three birds have been omitted from the following list because their identification was considered too doubtful. It is hoped that at some future date further notes may be added.

I am much indebted to Mr. Herbert K. Job for examination of the manuscript, and for helpful suggestions in preparing the same.

## *List of Birds Observed.*

1. **Podilymbus podiceps.** PIED-BILLED GREBE.— A single pair was seen in a small "pug hole," or slough, near Washburn Lake, on Aug. 19, 1907.

2. **Gavia immer.** LOON.— Abundant. Each small lake has its pair of birds. Their call is often heard in the early morning and late afternoon as they fly over singly or in pairs. By the middle of August, when the young are better able to take care of themselves, the Loons seem to prefer the larger lakes, perhaps because the food supply is better. I have sometimes seen as many as six Loons on Crooked Lake at one time.

3. **Hydrochelidon nigra surinamensis.** BLACK TERN.— These birds are commonly seen flying over Crooked and Blue Lakes. Flocks of twelve or fifteen will sometimes gather on a small island of rocks near the lower end of Crooked. These Terns seem to have become more abundant in the past year or two.

4. **Lophodytes cucullatus.** HOODED MERGANSER.— These birds appear to be not uncommon. I have seen them several times on small lakes west of Crooked, as well as on the latter and the small stream emptying from it.

5. **Anas platyrhynchos.** MALLARD.— Two or three pairs breed on Crooked Lake each year. They are not common here, however, because there is practically no wild rice. About twelve miles north of Crooked Lake Mallards are quite plentiful.

6. **Aix sponsa.** WOOD DUCK.— Several of these birds were usually observed each year on a small lake about a mile west of the camp.

7. **Botaurus lentiginosus.** BITTERN.— Common. I have several times flushed these birds by nearly stepping on them while walking along the lake shore. When out fishing I have rowed within a few feet of them only to have them take to the brush rather than fly.

8. **Ardea herodias herodias.** GREAT BLUE HERON.— Quite common. I was told by a former lumber camp cook that there was a colony of these birds on Pistol Lake, about eight miles west of Crooked Lake, but I was unable to verify this statement.

9. **Porzana carolina.** SORA.— Not common.

10. **Fulica americana.** COOT.— Uncommon. Seen on Crooked Lake Aug. 30, 1908.

11. **Gallinago delicata.** WILSON'S SNIPE.— Occasionally observed during fall migration. Seen on Aug. 25 and 29, 1908, and on Aug. 3, 1910.

12. **Helodromas solitarius solitarius.** SOLITARY SANDPIPER.— Not uncommon during the fall migration.

13. **Actitis macularius.** SPOTTED SANDPIPER.— A common bird along the lake shores. On July 22, 1909, a couple of young birds were caught and photographed on a small island at the lower end of Crooked Lake.

14. **Oxyechus vociferus.** KILLDEER.— On July 19, 1910, five birds were observed flying along the shore of Crooked Lake. At a small lake west of Crooked, on August 3, small flocks were observed running along the water's edge.

15. **Bonasa umbellus umbellus.** RUFFED GROUSE.— Common. Covies of these birds were often flushed. A cat from our camp caught a brooding bird on the nest, early in the season. The nest was located under a woodpile near the barn, and contained twelve eggs.

16. **Cathartes aura septentrionalis.** TURKEY VULTURE.— Occasionally seen soaring overhead.

17. **Circus hudsonius.** MARSH HAWK.— Rather common. On July 27, 1910, I scared up a family of five from ground partly overgrown with brush.

18. **Accipiter velox.** SHARP-SHINNED HAWK.— Not common. A male of this species was shot in the chicken yard on Aug. 13, 1908.

19. **Accipiter cooperi.** COOPER'S HAWK.— Not common.

20. **Buteo borealis borealis.** RED-TAILED HAWK.— A hawk of this species was identified on August 5, 1910.

21. **Haliæetus leucocephalus leucocephalus.** BALD EAGLE.— This bird is fast disappearing from this region. Formerly it was not uncommon to see two or three of these magnificent birds in the air at the

same time, but this year (1910) not a single bird was seen. The gunners cannot resist the temptation to shoot at the bird because of its size and beauty. I heard of one bird which was shot this summer, which I assumed from the description was a young bird. It was left where it fell.

22. **Falco sparverius sparverius.** SPARROW HAWK.— Rather uncommon.

23. **Pandion haliaëtus carolinensis.** OSPREY.— Three nests were located in rather close proximity to each other on the top of dead stubs about a mile from the camp and half a mile from Crooked Lake.

24. **Bubo virginianus virginianus.** GREAT HORNED OWL.— It is not unusual to hear the distant hoot of this owl about dusk or in the early evening. During the summer of 1907 a pair of young birds made their headquarters in a small tamarack swamp a short distance from the camp. Before it was dark they would commence calling at regular intervals, continuing until late at night. Their harsh, discordant cries so disturbed the sleep of some of the members of the camp that, finally, one of the birds was shot and the other scared away.

25. **Coccyzus americanus americanus.** YELLOW-BILLED CUCKOO.

26. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO.— On August 18, 1908, I caught and photographed a young bird that was just about able to fly. Cuckoos appear to be fairly common in this vicinity. They are heard quite often, but it is almost impossible to get near enough to see them, and for this reason it is difficult to say whether this or the preceding species is the more common.

27. **Ceryle alcyon.** KINGFISHER.— Commonly seen along the lake shores.

28. **Dryobates villosus villosus.** HAIRY WOODPECKER.— Fairly common. Quite often seen about the camp.

29. **Dryobates pubescens medianus.** DOWNY WOODPECKER.— Common, but especially so during the last of August and September.

30. **Sphyrapicus varius varius.** YELLOW-BELLIED SAPSUCKER.— In 1907 a bird was seen on August 6. The next year Sapsuckers were quite common. On August 11, and for two or three days following, a bird was observed drumming on the tin gutter of one of the buildings. During 1909 no Sapsuckers were seen, while in 1910 the only bird observed was seen on August 24.

31. **Phlœotomus pileatus pileatus.** PILEATED WOODPECKER.— I have never seen this bird, but twice I have heard a call which a former "lumber jack," in charge of the camp during the year, ascribed to this species. He said that he occasionally saw these birds around the camp in the spring. The mummified remains of a male bird, shot this last spring, was shown to me.

32. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— Although never very common this bird seemed to be more rare than usual in 1910. Only two individuals were observed.

33. **Colaptes auratus luteus.** FLICKER.— Very common. This

country offers innumerable nesting sites in the enormous number of dead tree trunks that are standing.

34. **Antrostomus vociferus vociferus.** WHIP-POOR-WILL.— Nearly every night during July several Whip-poor-wills were heard calling in the distance, but after the middle of August they were only heard occasionally.

35. **Chordeiles virginianus virginianus.** NIGHTHAWK.— Abundant. In the day time I have found them squatted on the tops of stumps. During the afternoon and until dark they are commonly seen overhead. About the first of September thirty or forty migrating Nighthawks may be counted at one time. On July 24, 1907, while walking across a blueberry patch, I flushed two young birds, which succeeded in making their escape.

36. **Chætura pelagica.** CHIMNEY SWIFT.— Not very common. Several were observed about a mile beyond the end of Crooked Lake on July 31, 1907, when a nest containing four young birds was found in a deserted log cabin. I believe that the Swifts quite often nest in hollow stubs in this vicinity.

37. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.— Not more than two or three have been observed during an entire season.

38. **Tyrannus tyrannus.** KINGBIRD.— Abundant.

39. **Sayornis phœbe.** PHŒBE.— Quite common. There are two double-deck nests in the camp that have been occupied in successive years; one under the ridgepole of a log cabin, and the other on the window sill of a frame building. A third nest was located in the woodpile.

40. **Myiochanes virens.** WOOD PEWEE.— Very common in the vicinity of the camp, where there are several stretches of hard wood forest.

41. **Empidonax minimus.** LEAST FLYCATCHER.— Not as common as the Wood Pewee, but found in the same location.

42. **Cyanocitta cristata cristata.** BLUE JAY.— Common at all times, but more noticeable toward the end of August, when they commence to call.

43. **Corvus corax principalis.** NORTHERN RAVEN.— Occasionally seen near the lake shore, or soaring overhead.

44. **Corvus brachyrhynchos brachyrhynchos.** CROW.— Fairly common.

45. **Molothrus ater ater.** COWBIRD.— Not very common. A few seemed to remain near the camp.

46. **Agelaius phœniceus phœniceus.** RED-WINGED BLACKBIRD.— This bird is not as common in this region as one would be led to expect from the large amount of marshland and the great number of lakes.

47. **Sturnella magna magna.** MEADOWLARK.— Occasionally seen in the vicinity of Emily, about five miles south of Crooked Lake, where the land is more or less cultivated.

48. **Icterus galbula.** BALTIMORE ORIOLE.— On August 22, 1908, a bird was seen at a distance and identified as a female of this species. The identification, however, was not positive, and it may be that the Baltimore Oriole does not occur in this immediate vicinity.

49. **Quiscalus quiscula æneus.** BRONZED GRACKLE.— Rather uncommon during the summer, but small flocks are sometimes seen during the latter part of August.

50. **Carpodacus purpureus purpureus.** PURPLE FINCH.— Occasionally observed around the camp in the latter part of summer.

51. **Astragalinus tristis tristis.** GOLDFINCH.— Very abundant. A nest containing five eggs was found on August 23, 1910.

52. **Passer domesticus.** ENGLISH SPARROW.— First appeared in this immediate vicinity in spring of 1907. They attempted to take possession of the Martin houses, but several were shot and the rest scared off. Each year since then war has been waged upon them, and they have not as yet become troublesome.

53. **Pœcetes gramineus gramineus.** VESPER SPARROW.— Along the road to Emily, and wherever tracts of sufficient size have been cleared, or are not overgrown with brush, the Vesper Sparrow is quite common.

54. **Ammodramus savannarum australis.** GRASSHOPPER SPARROW.— It is not unusual to hear the song of this rather shy and unobtrusive bird, coming from the brush and fields along the road from Outing to Emily.

55. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.— The song of this characteristic bird may be heard at almost any hour of the day.

56. **Spizella passerina passerina.** CHIPPING SPARROW.— Quite abundant, especially near the camp. Several nests were observed in the lower branches of the pines.

57. **Spizella pusilla pusilla.** FIELD SPARROW.— Common along the road to Emily, where there are several cultivated fields, but rare elsewhere.

58. **Melospiza melodia melodia.** SONG SPARROW.— Very common. A nest, located near the outlet of Crooked Lake, was situated in a bush, about six feet from the ground, and contained three eggs on July 24, 1910. Another nest was found in a bush overhanging the water and only about two feet from it.

59. **Pipilo erythrophthalmus erythrophthalmus.** TOWHEE.— Common in the brush, where their song is continually heard.

60. **Zamelodia ludoviciana.** ROSE-BREASTED GROSBEAK.— Not uncommon. A pair were seen July 28, 1907, and a female Aug. 21, 1910. They are occasionally observed on the drive into camp.

61. **Piranga erythromelas.** SCARLET TANAGER.— Rather uncommon.

62. **Progne subis subis.** PURPLE MARTIN.— Common. The farmers as a rule erect some kind of a nesting box and these are usually occupied. In three cases I have found Martins nesting in holes in dead trees, and I believe it is not an uncommon practise in this locality. In 1904 three Martin houses on the camp were each occupied by a single pair of birds. In 1905 there was no increase. By 1907 we had put up five houses of various kinds and four of these were in use by five pairs of birds. In 1908 there was a small increase in our flock. The next year two of the

first houses were replaced by new ones. There were perhaps twelve pairs of birds nesting about the camp, although the exact number could not be ascertained. This year another house was erected and a further increase of the flock noticed. A few days before they left this fall I was able to count over fifty birds, and without doubt there were more. Average date of departure, August 25. Latest seen August 29, 1908.

63. **Petrochelidon lunifrons lunifrons.** CLIFF SWALLOW.— A few occasionally seen in the fall.

64. **Hirundo erythrogastra.** BARN SWALLOW.— Never seen in the immediate vicinity of Crooked Lake, but observed along the road to Pine River, where the country is more settled.

65. **Bombycilla cedrorum.** CEDAR WAXWING.— Common. On Aug. 4, 1908, four young birds were found that were not quite able to fly. While arranging them to be photographed one of the old birds came and fed them. The old birds appeared to be fearless, and fed the young ones blueberries and wild cherries while I held them enclosed in my hands, and even tried to get to their young when I pushed them gently aside. Nests were sometimes located in the Norway pines, from the noise made by the young in calling for food. Usually these nests were placed upon the extreme ends of the branches and were inaccessible. They were generally composed almost entirely of usnea moss.

66. **Vireosylva olivacea.** RED-EYED VIREO.— Very common. From August 21 to 24, 1910, large numbers of migrants were seen.

67. **Mniotilta varia.** BLACK AND WHITE WARBLER.— One was heard singing on Aug. 11, 1910. Migrants were fairly common on, and for a few days after, the twenty-first of the month.

68. **Vermivora rubricapilla rubricapilla.** NASHVILLE WARBLER.— A bird was seen in the second growth near the bank of a small lake on August 17, 1910, and was identified as belonging to this species.

69. **Dendroica æstiva æstiva.** YELLOW WARBLER.— Not uncommon along the borders of the lakes.

70. **Dendroica pensylvanica.** CHESTNUT-SIDED WARBLER.— Rather rare summer resident; more common after the middle of August.

71. **Dendroica virens.** BLACK-THROATED GREEN WARBLER.— I have never observed this bird in the pines around the camp, although I have heard the song on the drive into camp.

72. **Dendroica vigorsi.** PINE WARBLER.— Quite often observed in the pines near the camp, where it probably breeds.

73. **Seiurus aurocapillus.** OVENBIRD.— Common.

74. **Seiurus noveboracensis noveboracensis.** WATER THRUSH.— Quite common from August 24 to 27, 1910, when it was observed in the birch woods as well as along the water's edge.

75. **Geothlypis trichas trichas.** MARYLAND YELLOW-THROAT.— Abundant.

76. **Wilsonia canadensis.** CANADA WARBLER.— Migrants were seen on August 21 and 24, 1910.

77. **Setophaga ruticilla.** REDSTART.— Rather rare summer resident. Migrants observed from August 19 to 24, 1910.

78. **Dumetella carolinensis.** CATBIRD.— Not very common. A pair nested near the camp but they were seldom seen in the brush.

79. **Toxostoma rufum.** BROWN THRASHER.— Not uncommon.

80. **Troglodytes aëdon aëdon.** HOUSE WREN.— Very common. One pair was found nesting in a rural delivery box, while a second pair selected an old threshing machine as a desirable location. Another pair nested within one of the camp buildings, gaining access through a crevice under the eaves.

81. **Sitta carolinensis carolinensis.** WHITE-BREASTED NUTHATCH. — Quite common.

82. **Penthestes atricapillus atricapillus.** CHICKADEE.— Common.

83. **Hylocichla mustelina.** WOOD THRUSH.— Occasionally seen, but more often heard, in the late afternoon or evening.

84. **Hylocichla fuscescens fuscescens.** VEERY.— During the summer of 1908 the Veery was quite often seen or heard in the vicinity of the camp, but all other years it has been more or less uncommon.

85. **Planesticus migratorius migratorius.** ROBIN.— Common about the camp.

86. **Sialia sialis sialis.** BLUEBIRD.— Fairly common. One or two broods usually remained near the camp.

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## THE BAHAMAN SPECIES OF *GEOTHLYPIS.*

BY W. E. CLYDE TODD.

Two very distinct Warblers of the genus *Geothlypis* exist in the Bahama Islands, one the common Maryland Yellow-throat of eastern North America, *G. trichas*, which occurs as a winter resident, the other a much larger endemic species, found in the more northern islands of the group, where it has become split up into a number of closely allied specific or conspecific forms, whose discrimination is a matter of no small difficulty. Our present concern is with this larger bird, this study being the outgrowth of an attempt to identify the specimens collected by Mr. W. W. Worthington in 1909, and having been made possible through the courtesy of the various institutions and individuals specified beyond, where-

by I have been able to bring together no less than one hundred and fourteen specimens of this puzzling group, including the types of five of the described forms. The examination and comparison of this material, inadequate as it is in many respects, has nevertheless led to some interesting results which, differing somewhat as they do from previously published conclusions, are presented herewith as a contribution towards the solution of an intricate and perplexing problem.

The bird in question was discovered by Dr. Henry Bryant on the island of New Providence during his second visit to the Bahamas (in the winter of 1865–66), and was described from three male specimens under the name *Geothlypis rostratus*,[1] comparison being made with *G. trichas*. In 1872 Mr. Ridgway [2] reduced it to a subspecies of *G. trichas*, but it was subsequently raised again to specific rank by Mr. Cory [3] — a decision which has not been questioned since. Mr. Cory was apparently the second person to meet with the species, securing two specimens, one of which was a female, during December, 1878, and January, 1879. In 1886 Mr. Ridgway [4] described two allied forms, *G. coryi* from Eleuthera and *G. tanneri* from Abaco, based on specimens collected by the naturalists of the U. S. Fish Commission Steamer 'Albatross.' In 1892 Mr. Cory [5] recorded birds of this general type from New Providence, Andros, Great Bahama, Abaco, and Eleuthera, and suggested that *G. tanneri* ought to stand as a subspecies of *G. rostrata*, while at the same time insisting upon the specific distinctness of *G. coryi*. His remarks seem to have been based on an examination of the specimens in his own collection and in that of Mr. Charles J. Maynard, who has collected more examples of these skulking, retiring birds than any other person. Indeed, so far at least as New Providence is concerned, these birds, never abundant at any time, seem to have been so far reduced in numbers by Mr. Maynard's collecting (in 1897) that they have not yet recovered their lost ground; at any rate, no subsequent collectors have ever been

[1] Proc. Boston Soc. Nat. Hist., XI, 1867, 67.
[2] Am. Jour. Sci., IV, 1872, 458.
[3] Birds Bahama Islands, 1880, 73.
[4] Auk, III, 1886, 334, 338.
[5] Cat. West Indian Birds, 1892, 156.

able to find them in any numbers. Mr. Maynard's specimens were scattered, the greater part, however, going into the collections of Messrs. E. A. and O. Bangs and of Mr. G. S. Miller, Jr., the latter thence into the British Museum, being thus lost to ornithologists in this country.

Up to 1897, although meanwhile, as we have seen, certain of the other islands had been credited with what were considered representative insular forms, no one seems to have suspected the existence of *two* supposedly distinct species on New Providence, and "it is to Mr. Maynard's great acuteness as a collector that this unlooked for discovery is due." While collecting these birds that season he noticed that they had "two different songs, and making notes on the birds he shot, soon found that two distinct species were breeding equally commonly there. The smaller, duller colored bird, *G. rostrata*, sings like a Maryland Yellow-throat. The larger, more highly colored species, sings like *G. coryi*,— a song so different that Mr. Maynard says, no one on first hearing it would take it for the performance of a Yellow-throat."[1] Mr. Bangs accordingly described the latter form under the name *Geothlypis maynardi*, after its discoverer, pointing out its obvious distinctive characters as compared with *G. rostrata*. Thus matters rested until 1902, when Mr. Ridgway[2] described a second form from Abaco, *G. incompta*, one from Andros, *G. exigua*, and a *third* from New Providence. *G. flavida*, the latter having originally been recorded as a probably accidental occurrence of *G. coryi* by Mr. Bangs. Mr. Ridgway also discussed the case of these Bahaman forms at considerable length, and, while provisionally retaining them all as full species, he at the same time suggested that eventually they would have to stand as follows:

1. *Geothlypis rostrata.* New Providence.
2. *Geothlypis tanneri tanneri.* Abaco.
3. *Geothlypis tanneri maynardi.* New Providence..
4. *Geothlypis incompta incompta.* Abaco.
5. *Geothlypis incompta exigua.* Andros.
6. *Geothlypis coryi coryi.* Eleuthera.
7. *Geothlypus coryi flavida.* New Providence.

[1] Bangs, Auk, XVII, 1900, 290.
[2] Birds N. and Mid. Am., II, 1902, 677, 678.

The latest authority to deal with the question is Mr. J. Lewis Bonhote,[1] who, apparently without having seen Mr. Ridgway's conclusions, challenges the status of *G. maynardi*, adducing arguments as well as *a priori* considerations tending to show that it represents merely the fully adult plumage of *G. rostrata*. Mr. Bonhote further records a dull-colored bird from Abaco which he refers doubtfully to *G. tanneri*, but he points out that if "*G. maynardi* and *G. rostrata* prove to be two good species, then the dull Abaco bird must be specifically distinct from *G. tanneri*, but could hardly be considered distinct from *G. rostrata*."

With this historical review of the subject as an introduction, let us now take up our series of specimens. Laying aside for the moment the (twenty-two) female and young birds and confining our attention to the adult males, we find the island of New Providence represented by forty-six specimens, with three exceptions all taken during the first six months of the year, and therefore in winter or nuptial plumage, as the case may be. Unlike *G. trichas*, there would seem to be no prenuptial moult, the nuptial plumage being acquired apparently by wear alone; at any rate, I can find no traces of such a moult in the present series. The lot of skins as they lie fall naturally into two series, the criteria for their separation being the intensity of the yellow below and the color of the flanks and tibiæ. One, with which the type of *G. rostrata* agrees, is paler yellow below, the abdomen decidedly duller and paler than the throat and breast, while the flanks are conspicuously "light buffy grayish brown" — a difficult color to name precisely, but sufficiently distinctive autoptically. The other lot, to which the type of *G. maynardi* belongs, is obviously deeper and brighter yellow below, almost as bright on the belly as anteriorly, while the flanks are greenish yellow. These differences stand out prominently when the two series are compared as such, and apparently are not influenced to any extent by wear. Turning the skins backs uppermost, corresponding differences are obvious between the respective series, although perhaps not so decided or constant as in the case of the under parts. In *G. rostrata* the back is duller olive green, the gray of the crown is purer, less greenish, and the

[1] Ibis, 1903, 283–286.

"superciliaries" [1] are grayish white, sometimes very faintly tinged with pale yellowish behind the eyes. In *G. maynardi* the back is brighter olive green, the crown averages more greenish, and the superciliaries are more decidedly tinged with yellow. There is, however, considerable individual and seasonal variation in all these respects. Several specimens taken in May and June are in more or less worn breeding dress, and in these the gray of the crown (which is mainly superficial) is scarcely obvious, the color being dull greenish. The type of *G. flavida* I have not seen, but the only other specimen referred to this form by Mr. Ridgway (No. 3376, Bangs Collection), now before me, I should judge to be merely a worn example of *G. maynardi*. At any rate, it certainly agrees very closely, allowing for its more worn and faded condition, with a skin of *G. maynardi* (No. 189826, U. S. National Museum) dated June 18. Additional corroborative evidence on this question is afforded by a study of the effect of wear in the case of *G. beldingi*,[2] a species closely allied to the Bahaman bird, although widely separated therefrom geographically. In this species there is a decided difference between birds in winter and in worn breeding plumage. Many individuals in the latter dress have no vestige of brown (corresponding to the gray of the Bahaman species) on the crown and occiput, while the post-facial band is wider, and brighter yellow, passing into yellowish green posteriorly, giving a much brighter general effect. The changes due to wear in this species, therefore, are evidently precisely analogous to those in the Bahaman bird which have led to the separation of the so-called *G. flavida*. Under such circumstances I think that there can be no doubt as to the propriety of dropping the latter from further consideration.

Measurements of the two supposed New Providence forms, as per the subjoined tables, and indicated by Mr. Bangs, show a small average difference in the wings, and tail, *G. maynardi* being slightly the larger in these respects. In the case of the females the color-

[1] *I. e.*, the line along the upper margin of the black "mask," from above the eye to the nape.

[2] I am indebted to Mr. William Brewster and Mr. John E. Thayer for the loan of their respective series of this species, which, taken in connection with the material in the Carnegie Museum, has furnished an ample basis for study.

differences exhibited are much more striking than in the males, although of a parallel kind. The female of *G. rostrata* is dull yellow — nearly straw yellow — below, fading to dull white on the abdomen, the sides and flanks shaded with pale grayish or buffy olive — all with an obsoletely streaked appearance, the general effect being much as in some immature specimens of *Dendroica striata*, except for the dull yellow under tail-coverts. The female of *G. maynardi*, on the other hand, is much brighter yellow below, the belly paler, more buffy, the sides and flanks darker, the general resemblance to the same sex of *G. beldingi* being quite close. It was a bird of this type that was described by Mr. Cory as the female of *G. rostrata*, his original specimen being now before me.

Bearing in mind the nature of the variations exhibited by the series from New Providence, let us now take up the birds from the northernmost islands, Abaco, Little Abaco, and Great Bahama, which, together with their outlying cays, are represented by a series of thirty-eight specimens, of which seven are adult females, one a female in juvenal dress, and one a young male in postjuvenal moult. The Abaco bird was first described by Mr. Ridgway, as aforesaid, under the name *Geothlypis tanneri*, and with the type specimens all the skins but twelve agree — three from Great Bahama, two from Little Abaco, and seven from Abaco. These twelve skins are obviously referable to Mr. Ridgway's *G. incompta*, the type of which was one of the four specimens listed under the original description of *G. tanneri*. Taking up the specimens representing this latter species first, we find that they differ from *G. maynardi* in the following particulars: (1) the general olive color of the upper parts has a brownish cast, quite evident when the two series lie side by side; (2) the gray of the crown is less obvious, and sometimes replaced by greenish olive or brownish (the same shade as in *G. beldingi*), while the paler anterior margin is scarcely or not indicated; (3) the superciliaries are decidedly yellow, passing into white posteriorly; (4) the yellow below averages deeper, while the flanks are washed with brownish yellow. The size, however, is the same as in *G. maynardi*. I am unable to point out any constant differences between the females of *G. maynardi* and *G. tanneri*; the latter, however, seem to average a little more richly colored below.

*Geothlypis incompta*, however, may be readily distinguished from *G. tanneri*, differing (1) in its slightly smaller size; (2) in its duller coloration above, the crown and back being less strongly contrasted; (3) in its much paler superciliaries, which are whitish or yellowish white; (4) in the yellow below being decidedly duller, especially on the abdomen; (5) in the color of the flanks, which are light buffy grayish brown, exactly as in *G. rostrata*.

We are now prepared to consider our series from Andros Island, consisting of nine specimens, all but one males. Although so few in number, two distinct types are represented, corresponding to those inhabiting both New Providence and the northern islands. Although the type specimen of *G. exigua* is unfortunately not available, the description indicates a dull-colored bird of the *rostrata-incompta* group, but with a shorter wing and smaller and more slender bill. In view of the range of variation exhibited in the measurements of the other forms, I am not inclined to attach any great significance to these differences, even though a larger series prove their constancy, as they are at most very slight and in my judgment unworthy of nomenclatural recognition. In fact, after a very careful comparison I find myself quite unable to distinguish three of the Andros birds (Nos. 39531–39533, Field Museum Collection) from *G. rostrata*, and should refer them to that form without hesitation. The other five male examples, which are all of the bright-colored type, are not so easily allocated, but on the whole seem best referred to *G. maynardi*, although the superciliaries have rather more yellow than the average of that form. The single female bird is also best placed here.

One other form, *Geothlypis coryi*, from Eleuthera Island, remains to be considered. Besides the type, nine specimens are available, including two females. This form seems sufficiently distinct at first glance to stand as a full species. It is characterized by its bright coloration, the olive green of the upper parts being much brighter than in any of the other forms, and the crown shows scarcely a trace of gray, being almost as green as the back — even more so in worn plumage — while the superciliaries are almost wholly bright yellow, with only a trace of white along the upper margin of the black auricular patch. The post-frontal band also is yellowish, but is not very distinctly indicated. Below, the yellow is as rich as in *G. maynardi*, and the flanks similarly colored. In

all these characters the present form is approached by some specimens of the *maynardi-tanneri* type, to which it is obviously allied. The female, too, is more richly colored than in the other forms, being much brighter olive (as bright as the male) above, and brighter and more extensively yellow below, while the superciliaries are distinctly yellow. The alleged differences in proportions, and in the width of the black frontal band, seem inconsequential upon comparison.

It appears, therefore, that on every island except Eleuthera where the large Yellow-throats occur two styles of bird are found, one of duller, the other of brighter, colors. What relation do these two types bear to each other, and to their respective inter-island variants? Are the five forms which are susceptible of definition full species, geographical variations of one or more specific types, or different plumages of such subspecies? Obviously the two forms from any one island cannot be regarded as conspecific without violating the definition of a subspecies as a "geographic race," inasmuch as both occur together in an unusually restricted area. We have seen that *G. rostrata* and *G. incompta* on the one hand, and *G. maynardi*, *G. tanneri*, and *G. coryi* on the other, represent respectively the dull and the bright birds on the various islands. We might therefore be justified in arranging the forms as follows:

1. *Geothlypis rostrata rostrata.* New Providence, Andros.
2. *Geothlypis rostrata incompta.* Abaco, Great Bahama, etc.
3. *Geothlypis tanneri maynardi.* New Providence, Andros.
4. *Geothlypis tanneri tanneri.* Abaco, Great Bahama, etc.
5. *Geothlypis tanneri coryi.* Eleuthera.

So far as the actual characters of the forms go such an arrangement is natural enough, but there still remains the question why two so closely related specific types should thus occur together, occupying the same habitat, and still preserve their distinctive characters. Would not such an association of the two forms constantly tend to interbreeding between them to a greater or less extent, resulting ultimately in but one form? Mr. Bonhote, in the paper before referred to, presents the question thus: "Supposing that they reached the island [of New Providence] as two separate forms, they would be bound to approximate and merge together; or supposing, which is almost certainly the case, that

they arrived on the island as *one* species, in what manner could natural selection so act as to produce two distinct species on one small rocky island, without hills, rivers, or any pronounced geographical features?"

The point here raised has been quite fully discussed by Prof. Dean C. Worcester in his paper on the distribution of Philippine birds.[1] Prof. Worcester doubts (from negative evidence) if two closely allied species would fuse under such circumstances, but thinks that either they would both continue to exist, or one would exterminate the other. Instances of such coincident distribution are not so numerous, however, as to allay the suspicion that we may not be dealing here with a case of this kind. Mr. Bonhote has advanced the theory that the observed differences are due entirely to *age*, the duller-colored individuals being birds in first nuptial plumage, while the brighter ones, are in second or later nuptial plumage, basing his arguments mainly on a specimen in his collection apparently showing the transition. Through Mr. Bonhote's courtesy this specimen, No. 728 of his collection, is now before me. It is an individual just completing (September 9) the postnuptial moult, retaining only the feathers of the flanks and tibiæ, which in color differ little from those of *G. rostrata*. Otherwise this specimen is typical of *G. maynardi*, being unusually richly colored below, owing of course to its fresh condition.

I should not be disposed to accept Mr. Bonhote's conclusions on the evidence of a single specimen of somewhat dubious character, especially in view of the fact that his theory finds no support by analogy when certain other species of this genus are examined, but there are other considerations not to be overlooked. The series of these birds which I have studied shows that in the dull-colored examples the plumage, particularly the remiges and rectrices, is more worn and faded than in bright-colored individuals taken at the same season. This is especially marked in the specimens from Abaco and Great Bahama, and fully accounts for the average difference in wing and tail measurements between the two series. Such a condition is precisely what obtains in the case of many species whose first nuptial plumage is merely the first winter plumage plus wear, to which the feathers of this stage are

[1] Proc. U. S. Nat. Mus., XX, 1898, 600–617.

less resistant. While it is quite true that adults and young of *Geothlypis trichas* are indistinguishable in nuptial plumage by color characters, it is unsafe to assume that the same condition holds in the Bahama species, inasmuch as it is now known that allied species may moult quite differently. As previously noted, there seems to be no prenuptial moult in the Bahaman species, while a specimen (No. 14988, Bangs Collection, Little Abaco, July 11, 1904) in postjuvenal moult is assuming the black "mask," also the dull-colored plumage of the posterior under parts supposed to be characteristic (in this case) of *G. incompta.* Moreover, an "adult" specimen of *G. rostrata* (No. 30638, Collection Carnegie Museum, Blue Hills, New Providence, January 6, 1909), seems to have an elastic soft spot in the skull, indicating immaturity. Unless specimens showing a moult from the juvenal plumage directly into a bird of the bright-colored style are forthcoming, therefore, we are fully justified, I think, in accepting the explanation advanced by Mr. Bonhote, which covers all the facts in the case except the matter of the alleged difference in song. Regarding this point further field observations are desirable, but it is very likely, as Mr. Bonhote suggests, that age might be responsible for this also. However, it is significant that Mr. Riley states that a "specimen of *tanneri* [the Abaco representative of *maynardi*] taken was singing a song somewhat resembling the well-known notes of *G. trichas*, but probably with more force."

As might be expected, the immature birds are less numerous than the adults, and the small series of Eleuthera skins which I have examined does not happen to contain any.

Although the three forms which appear worthy of recognition are not known actually to intergrade, it seems best to regard them as insular forms of one specific type, *Geothlypis rostrata* Bryant. The distinctive characters of the adult males are as follows:

Crown decidedly grayish; superciliaries faintly yellow-tinged; back dull olive green; flanks greenish yellow. (New Providence, Andros.) *Geothlypis rostrata rostrata.*

Crown more greenish (only superficially grayish); superciliaries decidedly yellow in front; back brownish olive green; flanks brownish olive yellow. (Abaco, Great Bahama, etc.) *Geothlypis rostrata tanneri.*

Crown decidedly yellowish green; superciliaries bright yellow; back bright olive green; flanks greenish yellow. (Eleuthera.) *Geothlypis rostrata coryi.*

The problem, thus reduced to its lowest terms, is seen to be quite simple. The confusion heretofore obtaining has been largely due, it will have been observed, to an imperfect understanding of the sequence of plumages involved, occasioned by lack of material. While there is still much to be desired in this respect, I venture to predict that the conclusions announced will not be unfavorably affected by future observations. In this connection I would suggest that *Geothlypis rostrata* is perhaps the descendant of a form which came originally from southern Mexico by way of Yucatan, being most nearly related to the group of Mexican species which comprises *G. flavovelata*,[1] *G. chapalensis*, and *G. beldingi*, rather than to *G. trichas*.

In order to completely clear up the confusion in the present group it seems desirable to cite the references, which are accordingly given herewith, together with a list of the specimens examined. In order to indicate the average difference in measurements that exist the dull (immature) and bright (adult) birds are separately grouped. The respective collections to which the specimens belong are designated by small index figures, as follows: [1] U. S. National Museum; [2] Bangs Collection (now in the Museum of Comparative Zoölogy); [3] Carnegie Museum; [4] Field Museum; [5] American Museum; [6] Brewster Collection; [7] Columbia University; [8] Bonhote Collection. This material comprises very nearly all the specimens now in America.

### **Geothlypis rostrata rostrata** *Bryant.*

*Geothlypis rostratus* BRYANT, Proc. Boston Soc. Nat. Hist., XI, 1867, 67 (Nassau, New Providence; type now in collection U. S. National Museum; food).— CORY, Birds Bahama Is., 1880, 73, 226 (New Providence; descr.; crit.; habits).— CORY, List Birds W. Indies, 1885, 9 (New Providence).— RIDGWAY, Auk, III, 1886, 335, in text (crit.).— CORY, Cat. W. Indian Birds, 1892, 156 (New Providence and Andros; crit.).— BONHOTE, Ibis, 1899, 510 (New Providence; habits; crit.).

*Trichas rostrata* GRAY, Hand-List, I, 1869, 242.

*Geothlypis trichas* var. *rostrata* RIDGWAY, Am. Journ. Sci., IV, 1872, 458 (New Providence; diag.).— RIDGWAY, in Baird, Brewer and Ridgway, Hist. N. Am. Birds, I, 1874, 296 (New Providence; diag.).

[1] *G. flaviceps* is now admitted by its describer, Mr. E. W. Nelson, to have been based on individual variation in *G. flavovelata*.

*Geothlypis rostrata* SHARPE, Cat. Birds Brit. Mus., X, 1885, 355 (reprint Cory's descr.).— CORY, Auk, III, 1886, 43 (reprint previous descr.).— RIDGWAY, Man. N. Am. Birds, 1887, 524 (diagnosis).— CORY, Birds W. Indies, 1889, 57 (reprint previous descr.).— CHAPMAN, Am. Nat., XXV, 1891, 533, 535 (relationship).— NORTHROP, Auk, VIII, 1891, 68 (Andros). — RIDGWAY, Auk, VIII, 1891, 335 (New Providence).— CORY, Cat. W. Indian Birds, 1892, 18, 119, 127 (New Providence and Andros).— PALMER, Auk, XVII, 1900, 217 (characters).— BANGS, Auk, XVII, 1900, 290, 291 (crit.; descr.; meas.; habits).— RIDGWAY, Birds N. and Mid. Am., II, 1902, 656 (crit.), 674 (descr.; syn.).— BONHOTE, Avic. Mag., VIII, 1902, 287 (New Providence; habits).— MAYNARD, Cat. Birds W. Indies, 1903, 26 (New Providence).— BONHOTE, Ibis, 1903, 283, (New Providence; crit.).— RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (New Providence; probable origin).— SHARPE, Hand-List, V, 1909, 115.

*Geothlypis coryi* (not of Ridgway) BANGS, Auk, XVII, 1900, 290, in text, 291 (Nassau, New Providence; crit.).— DUBOIS, Syst. Av., I, 1902, 437.— (?) RILEY, in Shattuck, The Bahama Islands, 1905, 367, part (Andros).

*Geothlypis maynardi* BANGS, Auk, XVII, 1900, 290 (Nassau, New Providence; type now in collection Museum Comp. Zoölogy; meas.; habits; crit.).— RIDGWAY, Birds N. and Mid. Am., II, 1902, 656 (crit.), 676 (descr.; syn.).— MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (New Providence).— BONHOTE, Ibis, 1903, 283, 284, 286, in text (New Providence; habits; crit.).— RILEY, Auk, XXII, 1905, 358 (New Providence; crit.).— RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (New Providence; probable origin).— SHARPE, Hand-List, V, 1909, 115.

*Geothlypis tanneri maynardi* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis exigua* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 677 (Fresh Creek, Andros; type now in collection British Museum). — MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (Andros). — RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (Andros; probable origin).— SHARPE, Hand-List, V, 1909, 115.

*Geothlypis incompta exigua* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis flavida* RIDGWAY, Birds N. and Mid. Am., II, 1902, 656 (crit.), 678 (Nassau, New Providence; type now in collection British Museum).— MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (New Providence).— RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (New Providence; probable origin).— SHARPE, Hand-List, V, 1909, 115.

*Geothlypis coryi flavida* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*List of Specimens.*

| No. | Sex. | Locality. | Date. | Wing. | Tail. | Exp. Cul. | Tar. |
|---|---|---|---|---|---|---|---|
| 54923[1] | ♂ im. | Nassau, N. P. (Type) | | 63 | 58 | 16 | 23.5 |
| 109939[1] | ♂ im. | Nassau, N. P. | May 30, 1884 | 62 | 56 | 16.5 | 23 |
| 3377[2] | ♂ im. | " " | " 14, 1897 | 61 | 56 | 16 | 22 |
| 3378[2] | ♂ im. | " " | Mar. 3, " | 63 | 60 | 16 | 22 |
| 3379[2] | ♂ im. | " " | " 9, " | 62.5 | 59 | 17.5 | 21.5 |
| 3380[2] | ♂ im. | " " | June 27, " | 61 | 57 | 15 | 22.5 |
| 3381[2] | ♂ im. | " " | Mar. 6, " | 65 | 60 | 16.5 | 22 |
| 3382[2] | ♂ im. | " " | May 13, " | 61 | 58 | 16 | 21.5 |
| 3383[2] | ♂ im. | " " | Mar. 10, " | 62.5 | 59 | 16.5 | 22 |
| 3384[2] | ♂ im. | " " | Feb. 6, " | 62.5 | 57.5 | 15.5 | 22 |
| 3385[2] | ♂ im. | " " | " 25, " | 63.5 | 58 | 16.5 | 21 |
| 3386[2] | ♂ im. | " " | Mar. 25, " | 62.5 | 57 | 16.5 | 22 |
| 30638[3] | ♂ im. | Blue Hills, N. P. | Jan. 6, 1909 | 61 | 56.5 | 17 | 23 |
| 39531[4] | ♂ im. | Andros | Nov. 25,1887 | 60 | 55 | 15.5 | 22 |
| 39532[4] | ♂ im. | " | Dec. 5, " | 58 | 54 | 15 | 21 |
| 39533[4] | ♂ im. | " | " —, " | 59 | 54 | 16 | 22.5 |
| 39534[4] | ♂ im. | Nassau, N. P. | Jan. 27, 1884 | 62.5 | 59 | 16 | 22 |
| 39535[4] | ♂ im. | " " | Feb. 2, " | 64 | 58 | 17 | 22 |
| 39536[4] | ♂ im. | " " | Jan. 29, " | 63 | 59 | 16.5 | 23 |
| 1388[8] | ♂ im. | " " | Apr. 19, 1902 | 63 | 59 | 16 | 23 |
| 108211[1] | ♀ im. | New Providence | Mar. 19, 1886 | 59 | 59 | 15 | 22 |
| 3375[2] | ♀ im. | Nassau, N. P. | Feb. 13, 1897 | 58.5 | 58.5 | 15.5 | 22 |
| 39537[4] | ♀ im. | " " | " 20, 1884 | 58 | 58 | 15.5 | 21 |
| 189826[1] | ♂ ad. | New Providence | June 18, 1903 | 67.5 | 61 | 16 | 22 |
| 3362[2] | ♂ ad. | Nassau, N. P. | May 11, 1897 | 66 | 56 | 16 | 22 |
| 3363[2] | ♂ ad. | " " (Type of *G. maynardi*) | " " " | 66 | 62 | 16 | 22 |
| 3364[2] | ♂ ad. | Nassau, N. P. | Feb. 8, " | 65 | 61 | 16.5 | 22.5 |
| 3365[2] | ♂ ad. | " " | " 12, " | 66 | 60 | 16.5 | 22 |
| 3366[2] | ♂ ad. | " " | Apr. 3, " | 66 | 60 | 16 | 23 |
| 3367[2] | ♂ ad. | " " | May 14, " | 67 | 61 | 16 | 22 |
| 3368[2] | ♂ ad. | " " | June 16, " | 64 | 59 | 16.5 | 23 |
| 3369[2] | ♂ ad. | " " | May 24, " | 63 | 60 | 16 | 21.5 |
| 3370[2] | ♂ ad. | " " | Mar. 4, " | 62 | 58 | 17 | 23 |
| 3371[2] | ♂ ad. | " " | June 24, " | 67 | 55 | 16 | 22.5 |
| 3372[2] | ♂ ad. | " " | May 11, " | 64 | 59 | 16 | 21 |
| 3373[2] | ♂ ad. | " " | " " " | 65 | 60 | 16 | 21 |
| 3374[2] | ♂ ad. | " " | June 22, " | 59 | 58 | 16.5 | 22 |

*List of Specimens.* (*Continued.*)

| No. | Sex. | Locality. | Date. | Wing. | Tail. | Exp. Cul. | Tar. |
|---|---|---|---|---|---|---|---|
| 3376[2] | ♂ ad. | Nassau, N. P. | July 7, 1897 | 65.5 | 59 | 15.5 | 23 |
| 30599[3] | ♂ ad. | Blue Hills, N. P. | Jan. 1, 1909 | 64 | 57 | 17 | 22 |
| 30735[3] | ♂ ad. | " " " | " 19, " | 65 | 61 | 16 | 22 |
| 31024[3] | ♂ ad. | Staniard Creek, Andros | Apr. 17, " | 62 | 55 | 15 | 23 |
| 39555[4] | ♂ ad. | "Bahama Islands" | Feb. —, 1884 | 68 | 59 | 15.5 | 23 |
| 39556[4] | ♂ ad. | Nassau, N. P. | " 28, " | 67 | 59 | 16 | 23 |
| 39557[4] | ♂ ad. | " " | Jan 28, " | 66.5 | 56 | 17 | 22.5 |
| 39558[4] | ♂ ad. | " " | Apr. 8, " | 68.5 | 60 | 15.5 | 22.5 |
| 39560[4] | ♂ ad. | " " | Mar. 11, " | 69 | 62 | 16 | 24 |
| 39562[4] | ♂ ad. | " " | May 27, " | 66 | 60 | 17 | 22 |
| 39564[4] | ♂ ad. | " " | —— — " | 64 | 56 | 15 | 22.5 |
| 39566[4] | ♂ ad. | " " | May 15, 1887 | 66 | | 16 | 22.5 |
| 39567[4] | ♂ ad. | " " | Dec. 28, 1878 | 67 | 57 | 17.5 | 23 |
| 39569[4] | ♂ ad. | Andros | Apr. 24, 1884 | 65 | 59 | 15 | 22 |
| 39570[4] | ♂ ad. | " | " " " | 65 | 61 | 15.5 | 23 |
| 39572[4] | ♂ ad. | " | Nov. 25, 1887 | 60 | 56 | 15 | 22 |
| 39887[5] | ♂ ad. | Nassau, N. P. | May 10, 1884 | 66 | 62 | 17 | 22.5 |
| 13140[6] | ♂ ad. | " " | Feb. 21, " | 67 | 59 | 16 | 22 |
| 258[7] | ♂ ad. | Nicol's Town, Andros | Mar. 21, 1890 | 62 | 60 | 15 | 23 |
| 1283[8] | ♂ ad. | Nassau, N. P. | Mar. 3, 1902 | 65 | 61 | 16 | 23 |
| 728[8] | ♂ ad. | " " | Sept. 10, 1898 | 61 | 58 | 15 | 22 |
| 109938[1] | ♀ ad. | " " | Feb. 27, 1884 | 62 | 56 | | 22 |
| 39559[4] | ♀ ad. | " " | " 4, " | 67 | 58 | 14.5 | 21 |
| 39561[4] | ♀ ad. | " " | Jan. 30, 1884 | 60 | 57 | 15.5 | 22 |
| 39563[4] | ♀ ad. | " " | Feb. 12, " | 64 | 56 | 15 | 23 |
| 39565[4] | ♀ ad. | " " | Jan. —, " | 61 | 55 | 16 | 23 |
| 39568[4] | ♀ ad. | " " | " 25, 1879 | 63 | 59 | 15.5 | 22 |
| 39571[4] | ♀ ad. | Andros | Dec. 4, 1887 | 62 | 55 | 15.5 | 22 |
| 13141[6] | ♀ ad. | Nassau, N. P. | Feb. 27, 1884 | 63 | 59 | 16 | 22 |

**Geothlypis rostrata tanneri** *Ridgway.*

*Geothlypis tanneri* RIDGWAY, Auk, III, 1886, 335 (Abaco; type, whose number should be corrected to 108493, in collection U. S. National Museum).— RIDGWAY, Man. N. Am. Birds, 1887, 525 (diagnosis).— JENNINGS, Johns Hopkins University Circulars, VII, No. 63, 1888, 39 (Joe's Cay, Little Abaco).— CORY, Auk, V, 1888, 157.— CORY, Birds W. Indies, 1889, 287 (Abaco; reprint orig. descr.).— CORY, Birds Bahama Is., ed. 2, 1890, inserted page (Abaco; reprint orig. descr.).— CORY, Auk, VIII, 1891, 298 (Abaco).— RIDGWAY, Auk, VIII, 1891, 334 (Abaco).— CORY, Cat.

W. Indian Birds, 1892, 156, in text (Abaco and Great Bahama; crit.).— PALMER, Auk, XVII, 1900, 217 (characters).— BANGS, Auk, XVII, 1900, 290, in text.— RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 676 (Abaco, Great Bahama ?; descr.; syn.).— BONHOTE, Ibis, 1903, 285 (Little Abaco; crit.).— MAYNARD, Cat. Birds W. Indies, 1903, 27 (Abaco). — ALLEN, (G. M.), Auk, XXII, 1905, 131 (Great Bahama, Moraine Cay, Abaco, Elbow Cay; habits).— RILEY, Auk, XXII, 1905, 358, 359, in text (Abaco; habits).— RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (Abaco, Little Abaco ?, Great Bahama ?; probable origin). — SHARPE, Hand-List, V, 1909, 115.

*Geothlypis tannerii* CHAPMAN, Am. Nat., XXV, 1891, 533, 535 (relationship).

*Geothlypis rostratus tanneri* CORY, Auk, VIII, 1891, 350 (Great Bahama).

*Geothlypis rostrata tanneri* CORY, Cat. W. Indian Birds, 1892, 18, 119, 127 (Abaco, Great Bahama).

*Geothlypis rostrata* var. *tanneri* DUBOIS, Syst. Av., I, 1902, 437.

*Geothlypis tanneri tanneri* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis tanner* (lapsus) ALLEN (G. M.), Auk, XXII, 1905, 133 (cays off Abaco, etc.).

*Geothlypis incompta* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 677 (Abaco; type in U. S. National Museum).— MAYNARD, Cat. Birds W. Indies, Second Appendix, 1903, 39 (Abaco).— ALLEN (G. M.), Auk, XXII, 1905, 131 (crit.).— RILEY, Auk, XXII, 1905, 359 (Abaco; habits).— RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367 (Abaco; probable origin).— SHARPE, Hand-List, V, 1909, 15.

*Geothlypis incompta incompta* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*List of Specimens.*

| No. | Sex. | Locality. | Date. | Wing. | Tail. | Exp. Cul. | Tar. |
|---|---|---|---|---|---|---|---|
| 108493[1] | ♂ ad. | Abaco (Type) | Apr. 3, 1886 | 67 | 61 | 15.5 | 22.5 |
| 189827[1] | ♂ ad. | " | July 22, 1903 | 62 | 58 | 16 | 21.5 |
| 14985[2] | ♂ ad. | Moraine Cay | " 13, 1904 | 66 | 63 | 15.5 | 21 |
| 14986[2] | ♂ ad. | Great Bahama | " 17, " | 65 | 59 | 15 | 22 |
| 31030[3] | ♂ ad. | Sand Bank, Abaco | Apr. 24, 1909 | 61 | 59 | 16 | 22 |
| 31086[3] | ♂ ad. | " " " | " 29, " | 65 | 62 | 16 | 21 |
| 31107[3] | ♂ ad. | Spencer's Pt., Aba. | May 4, " | 61 | 59 | 16 | 22 |
| 31108[3] | ♂ ad. | " " " | " " " | 63 | 61 | 16.5 | 22 |
| 31121[3] | ♂ ad. | " " " | " 5, " | 64 | 59 | 16 | 22 |
| 31138[4] | ♂ ad. | " " " | " 6, " | 64 | 60 | 16 | 21 |
| 39543[4] | ♂ ad. | Great Bahama | June 23, 1891 | 60 | 60 | 16 | 22 |

*List of Specimens.* (*Continued.*)

| No. | Sex | Locality. | Date. | Wing. | Tail. | Exp. Cul. | Tar. |
|---|---|---|---|---|---|---|---|
| 39544[4] | ♂ ad. | Great Bahama | June 24, 1891 | 58? | 54 | 16 | 22 |
| 39545[4] | ♂ ad. | " " | " 23, " | 63 | 59 | 15 | 22 |
| 39546[4] | ♂ ad. | " " | " 24, " | 63 | 59 | 16.5 | 22 |
| 39548[4] | ♂ ad. | " " | " 29, " | 62 | 57 | 16 | 22 |
| 39550[4] | ♂ ad. | " " | Dec. 22, " | 61 | 56 | 15.5 | 23 |
| 39553[4] | ♂ ad. | " " | " 23, " | 63 | 58.5 | 15 | 22.5 |
| 39554[4] | ♂ ad. | Abaco | Mar. " " | 62 | 60 | 16 | 21.5 |
| 1349[8] | ♂ ad. | Little Abaco | " 28, 1902 | 64 | 58 | 15 5 | 22 |
| 108496[1] | ♀ ad. | Abaco | Apr. 3, 1886 | 59 | 56 | 15 | 22 |
| 14987[2] | ♀ ad. | Great Bahama | July 17, 1904 | 59 | 54 | 16 | 22 |
| 39547[4] | ♀ ad. | " " | June 23, 1891 | 55 | 51 | 15 | 21 |
| 39549[4] | ♀ ad. | " " | " 29, " | 54 | 55 | 15 | 23 |
| 39551[4] | ♀ ad. | " " | Jan. 18, 1892 | 56 | 53 | 15 | 22 |
| 39552[4] | ♀ ad. | " " | Dec. 23, 1891 | 57 | 56 | 15 | 21 |
| 1359[8] | ♀ ad. | Little Abaco | Mar. 30, 1902 | 60 | 57 | 15 | — |
| 14988[2] | ♂ juv. | " " | July 11, 1904 | 62 | 57 | 15 | 22 |
| 108494[1] | ♂ im. | Abaco | Mar. 27, 1886 | 62 | 58 | 16 | 22 |
| 108495[1] | ♂ im. | " (Type of *G. incompta* | Apr. 6, " | 61 | 54 | 15.5 | 22 |
| 189758[1] | ♂ im. | " | July 22, 1903 | 60 | 56 | | 22 |
| 31059[3] | ♂ im. | Sand Bank, Abaco | Apr. 27, 1909 | 61 | 60 | 16.5 | 22 |
| 31120[3] | ♂ im. | " " " | May 5, " | 62 | 61 | 16 | 21 |
| 39538[4] | ♂ im. | Abaco | June 15, 1891 | 59 | 55 | 16 | 23 |
| 39539[4] | ♂ im. | " | " 13, " | 62 | 55 | 14 | 22 |
| 39540[4] | ♀ juv. | Great Bahama | " 24, " | 56 | 55 | 14 | 22 |
| 39541[4] | ♂ im. | " " | " 29, " | 52 | 54 | | 22 |
| 39542[4] | ♂ im. | " " | Jan. 8, 1892 | 61 | 59 | 15 | 21.5 |
| 1313[8] | ♂ im. | Little Abaco | Mar. 22, 1902 | 61 | 59 | 15.5 | 22 |

**Geothlypis rostrata coryi** *Ridgway.*

*Geothlypis coryi* RIDGWAY, Auk, III, 1886, 334 (Eleuthera: type in collection U. S. National Museum; crit.).— RIDGWAY, Man. N. Am. Birds, 1887, 525 (diagnosis).— CORY, Auk, V, 1888, 157.— CORY, Birds W. Indies, 1889, 287 (reprint orig. descr.).— CORY, Birds Bahama Is., ed. 2, 1890, inserted page (reprint orig. descr.).— CHAPMAN, Am. Nat., XXV, 1891, 533, 535 (relationship).— RIDGWAY, Auk, VIII, 1891, 336 (Eleuthera).— CORY, Auk, VIII, 1891, 351 (Eleuthera).— CORY, Cat. W. Indian Birds, 1892, 18, 119, 126, 127, 156 (Eleuthera; crit.).— PALMER, Auk, XVII,

1900, 217 (characters).— BANGS, Auk, XVII, 1900, 290, in text (song).— RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.), 677 (descr.; syn.).— MAYNARD, Cat. Birds W. Indies, 1903, 26 (Eleuthera).— RILEY, in Shattuck, The Bahama Islands, 1905, 354, 356, 367, part (Eleuthera; probable origin).— SHARPE, Hand-List, V, 1909, 115.

*Geothlypis coryi coryi* RIDGWAY, Birds N. and Mid. Am., II, 1902, 657 (crit.).

*Geothlypis rostrata* var. *coryi* DUBOIS, Syst. Av., I, 1902, 437.

*List of Specimens.*

| No. | Sex. | Locality. | Date. | Wing. | Tail. | Exp. Cul. | Tar. |
|---|---|---|---|---|---|---|---|
| 107876 [1] | ♂ ad. | Eleuthera (Type) | Mar. 12, 1886 | 65 | 59 | 16 | 22.5 |
| 107877 [1] | ♂ ad. | " | " " " | 60 | 59 | 16.5 | 22.5 |
| 39524 [4] | ♂ ad. | " (S. dist.) | Nov. 16, 1891 | 64 | 57 | | 22.5 |
| 39525 [4] | ♂ ad. | " (N. dist.) | " 17, " | 64 | 60 | 16 | 22 |
| 39526 [4] | ♂ ad. | " (N. E. Pt.) | " 23, " | 65 | 58 | 16 | 22 |
| 39528 [4] | ♂ ad. | " (moulting) | July 15, " | 63 | 56 | 15 | 21 5 |
| 39529 [4] | ♂ ad. | " | " " " | | 61 | 16 | 22 |
| 39530 [4] | ♂ ad. | " | " 16, " | 63 | 58 | 15 | |
| 107875 [1] | ♀ ad. | " | Mar. 13, 1886 | 61.5 | 57 | 15.5 | 22.5 |
| 39527 [4] | ♀ ad. | " (moulting) | July 15, 1891 | 55 | 57 | 15.5 | 22 |

In conclusion the writer wishes to acknowledge his indebtedness to the authorities of the various institutions specified previously, also to Messrs. William Brewster, John E. Thayer, and J. Lewis Bonhote, for the loan of specimens without which the present study would have been quite impossible.

## GENERAL NOTES.

**Nesting of Man-o'-war-bird** (*Fregata aquila*) **in Cuba.** — Puerto Escondido is a small and from the open sea invisible port on the south coast of Cuba a few miles to the east of Guantanamo Bay. It was used in the old days as a pirate retreat, being admirably fitted for the purpose by its narrow entrance and inconspicuousness, and is so mentioned in 'Tom Cringles Log' by Mr. Scott. The name Puerto Escondido means the Hidden Port. It will now form part of the U. S. Naval Station at Guantanamo Bay and will therefore be American territory. In this port is a small Key — Cayo Guincho — about 100 feet in diameter composed mostly of mud upon which grows, in the center, a large mangroove tree surrounded by smaller ones in the water. Upon approaching the key on Dec. 23, 1910, large numbers of Man-o'-war-birds were seen flying about it and upon a closer inspection it was noticed that the large tree had a number of nests upon it. The birds, frightened by the launch, left the nests so hurriedly that some eggs were knocked out, while below, among the roots of the smaller mangroves in the water, two species of "snapper" (*Neomænis cyanopterus* Linn. and *Neomænis griseus* Linn.) were greedily feasting on the fallen eggs.— Charles T. Ramsden, *Guantanamo, Cuba.*

**American Merganser in South Carolina.**— On January 2, 1911, I secured the first authentic record for the American Merganser (*Mergus americanus*) in this State. Mr. Arthur T. Wayne, in his 'Birds of South Carolina,' refers this species to a hypothetical list, and declares that to the best of his knowledge it has never been taken in the State. The specimen here recorded was shot on Back River near its junction with the Cooper, after having partially swallowed a mullet ten inches in length. The weight of the mullet in its throat destroyed its balance and made continuous flight impossible. The bird rose half a dozen times but with each attempt at escape could gain only a few yards.

Several years ago a Merganser was taken on the upper Cooper River which I afterwards decided was the *Mergus americanus*, but as this specimen was not preserved I have been on the lookout during the past season for another to prove the occurrence of the species in South Carolina.

The specimen taken on Back River is a fine adult male in full plumage with the breast and under-parts a delicate peach-blossom color. The skin is now in the collection of the Charleston Museum (Spec. No. 7258).— Caspar Chisolm, *Charleston, S. C.*

**Additional Records of the European Widgeon** (*Mareca penelope*).— The last captures for the interior I recorded in 'The Auk' (Vol. XXII, 1905, p. 206). As a matter of convenient reference I now add to the list three specimens.

In his 'Preliminary Catalogue of the Birds of Missouri,' 1907, p. 33, Mr. Otto Widmann records the capture of a male bird shot by Dr. A. E. Rives of East St. Louis, Ill., in the vicinity of St. Louis, April 10, 1905. In the 'Forest and Stream' of Jan. 28, 1911, Mr. Albert G. Holmes of Green Bay, Wis., records the capture of a male European Widgeon which came to his decoys while hunting on Point Au Sable, Green Bay, Wis., Nov. 11, 1906, and a second specimen, also shot by him in the same location Oct. 23, 1910.

Mr. Holmes writes me that he believes these Widgeon to be more numerous than is generally supposed, and are considered hybrids by gunners, as he himself first thought until he learned the characteristic differences between the English and American species from an old hunter naturalist who knew the former in the Old World before settling here. Neither of these Wisconsin specimens were preserved. These records make the twenty-third for the interior.— RUTHVEN DEANE, *Chicago, Ill.*

**A Banded Baldpate shot at Currituck, N. C.**— On January 5, 1911, a member of the Currituck Shooting Club of North Carolina shot a male Baldpate (*Mareca americana*) that had on its leg a band, numbered "7206 R." This may be interesting to the man who tagged the bird.— JOHN E. THAYER, *Lancaster, Mass.*

**A Second European Teal** (*Nettion crecca*) **in Maine.**— On March 26, 1910, I was called upon to examine a specimen of the European Teal in the flesh, which had been taken a day or two earlier at Scarborough, Maine. During the day, the bird was examined by Messrs. Nathan C. Brown and Walter H. Rich. It was a male in good plumage. The skin passed into the possession of Dr. Henry H. Brock, of this city. The sternun, shoulder girdle, and sacrum are in my possession.

The only other occurrence in the State known to me is the one recorded by Dr. Brock, as taken in Casco Bay, April 6, 1903 (Auk, XXIV, p. 94).— ARTHUR H. NORTON, *Portland, Me.*

**The White-winged Scoter** (*Oidemia deglandi*) **in South Carolina.**— In 'Birds of South Carolina,' 1910, p. 218, I placed this species in the hypothetical list on account of insufficient evidence of its occurrence in the State. I now, however, wish to record a specimen that I observed on January 20, 1911, on the Wando River. I was *en route* to "Cat Island," and when off that place I observed a large, black Scoter flying up the river. When the bird was abreast of me I was surprised to see that the wings (speculum) were white, for long before it came within good view I was satisfied that it was a Surf Scoter (*O. perspicillata*). The distance was too great for a successful shot, but I watched the bird with longing eyes until it finally disappeared from vision.

Although mussels and other shell-fish are found in quantities in the Wando River and the Golden-eye (*Clangula clangula americana*) winters

regularly there, few Surf Scoters frequent this stream. — ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

**Early Date for the Ruddy Duck.**— On Labor Day, Sept. 5, 1910, a single Ruddy Duck was seen in Oldham Pond, Pembroke, Mass., by Mr. A. B. Gardner, who assures me that it was not a cripple, and had not been about the pond before that date. There can be no mistake as to the identity of this bird, as Mr. Gardner is perfectly familiar with the species and paddled to within a few yards of this individual.— J. C. PHILLIPS, *Wenham, Mass.*

**A Wood Ibis Record for Michigan.**— June 19, 1910, a Wood Ibis, *Mycteria americana*, was taken near Monroe, Monroe County, Mich. (on the west shore of Lake Erie), by Mr. J. A. Peterson of that city who brought it in to the shop of Mr. L. H. Eppinger to be mounted, where I examined it in the flesh. It was a juvenile bird, so shot as to be of indeterminate sex. As a matter of record, a photograph of the mounted bird was made and preserved. The species has been in the hypothetical list for this State for some time but this appears to be the first fully authenticated record for it within our Michigan boundaries.— P. A. TAVERNER, *Highland Park, Mich.*

**The Nuptial Plumes of Bitterns: A Correction.**— In the last number of 'The Auk' (Vol. XXVIII, Jan., 1911, p. 100) I quoted, from an article written by Agnes M. Learned and published in 'Bird-Lore' (Vol. X, No. 3, May–June, 1908, pp. 106–108), a paragraph relating to the white nuptial plumes of the American Bittern. This I characterized as "rather curiously incomplete," failing to notice that it is led up to and made perfectly intelligible by two or three lines which occur above it on the same page in the midst of matter not closely kindred. They run as follows: "Here we saw, one perfect Sunday morning in June (the 9th), the Bittern; but not as we had seen him before, for on his back he wore two clusters of beautiful white plumes that fluttered softly in the morning air."

I trust that Miss Learned will forgive me for overlooking this essential and gracefully worded passage. How I could have done so is difficult to understand for I read her article no less than three times — as I thought, with care. Apparently my eyes see Bittern plumes better in Concord bogs than in printed text; but then light within doors is no longer what it used to be, as every oldish person knows.— WILLIAM BREWSTER, *Cambridge, Mass.*

**Nesting of the King and Virginia Rails** (*Rallus elegans et virginianus*) **in Philadelphia County, Pa.**— KING RAIL. In 'The Auk,' Vol. XXV, p. 218, I reported having found two nests of this species at Bridesburg, in the northeastern part of this county, where it is a very rare breeder, and now desire to place on record the discovery of two subsequent nests.

The first of these, found on June 12, 1908, situated in a small bulrush marsh, contained 11 half incubated eggs; the other nest, in a different part of the meadows, held 9 eggs (all fresh) on June 13, 1910, and was placed in a thick cattail marsh. Both sets were collected and are now in the writer's collection, and identification was obtained by seeing the birds at the nests on both occasions.

During the summer of 1909, I failed to find any nests or birds in the meadows, where I searched thoroughly for them, but the foregoing nests and birds rewarded my diligent searches during the years of 1908 and 1910, so the King Rail is still to be regarded as a rare breeder in Philadelphia County — at least in the northeastern part.

Virginia Rail.— This rail seems to be increasing in northeastern Philadelphia as a summer resident. I stated in 'The Auk,' Vol. XXV, p. 219, that I had only found two nests prior to 1908, but my persistent searches during the past two years have been rewarded by the discovery of several nests at Bridesburg, and two sets of eggs were collected. A set of 10 fresh eggs was taken on June 10, 1909, and another clutch of 9, highly incubated, on May 27, 1910; both of these sets are now in the writer's collection.

Of the other nests found, two were empty and were apparently never used, being probably deserted on account of being discovered before any eggs were laid, and a brood was raised in a third. In another part of the meadows, in July, 1909, a brood was raised in a marsh, where the young were seen numerous times by different persons.

Mr. Edwin C. Axe, a local taxidermist, tells me of having seen four young rails, undoubtedly of this species, at Point Breeze, a locality on the Schuylkill River, to the south of the city, in the summer of 1905 (?), and of his failure to capture any of them.— Richard F. Miller, *Aramingo, Philadelphia, Pa.*

**Hudsonian Godwit** (*Limosa hæmastica*) **in Massachusetts.**— During the latter part of the summer, more especially during late August and early September, there was quite a flight of Hudsonian Godwit along the coast. Though this bird is not distinctly very rare within the borders of this State it is so uncommon that but very few are seen or shot in any one season. This summer and fall there were more birds than there have been for a number of years. The total of those I could get definite reliable records of show 25 shot on 17 different dates. There are also records of more seen, some of which are authentic while others are questionable. The latter I have carefully excluded from the list but mention them later on. A reliable gunner at Chatham, who has been shooting for about twenty years, informed me that he had not in his experience seen or heard of their being so many around. All my records are from localities south of Boston, for I found none for the northern part of the State. It may be of interest to tabulate these below: —

Early August, 3, Chatham (two different days).

Aug. 15, flock of 10 lit off blind out of range. Were watched for some time with glasses.

Aug. 26, 2, Chatham.

Last week of August, 4 (2 more seen), Chatham (three different days).

Last week of August, 1, Plymouth.

Sept. 1, 1, Chatham.

Sept. 2, 1, Plymouth.

Sept. 5, 4, Chatham (flock of 30–35 birds).

Sept. 5, 1, West Dennis.

Sept. 6, 1, Yarmouthport.

Sept. 12, 2, Chatham.

Sept. 13, 1, East Sandwich.

Sept. 22, 1, Chatham.

Sept. 24, 1, Chatham.

Oct. 19, 1, Welfleet } found in Quincy market, Boston.
Oct. 22, 1, Welfleet }

In most cases they were lone birds and, contrary to their habits, were tame and decoyed readily. However, on September 5, during a heavy easterly storm with a downpour of rain, a flock of 30–35 birds went over our stand at Chatham. Instead of alighting, as we supposed they would do, for they appeared very much exhausted, they continued their slow flight and disappeared going due south in the heaviest part of the storm. However, a man a short way below us shot three of these birds as we watched them go over him high up, and later we found someone else above us had shot one from the same flock only a minute or two earlier. One of these men estimated that the flock contained over 40 birds, so my figures may be too low or else, after he fired the birds may have separated so that we might have seen only part of the original flock.

I believe Hudsonian Godwit are now rarely seen on the Atlantic coast in such numbers. In August, 1907, a similar flock was seen at Ipswich, out of which several birds were shot, and the gunners there considered such a flock of rare occurrence. Another gunner at Chatham reported having seen a flock of from 50–75 large birds, which from his description probably were Godwit, as he is well acquainted with all the other common shore birds. On inquiring of the M. Abbot Frazar Co., I found but two specimens in their shop being mounted. Mr. F. A. Webster of Hyde Park wrote me that but one bird had been sent to him. He said someone reported having seen a flock of birds at Winthrop, evidently Godwit, and that someone else had shot two which had been eaten. These are the only reports I was able to collect besides the actual records of those shot. Mr. T. C. Wilson of Ipswich writes that he had shot none and to his knowledge none had been seen there this year. Of the specimens I saw the majority were adult birds with distinct traces of their nuptial plumage. Unquestionably there was an unusually large flight of these birds during the early fall.—S. Prescott Fay, *Boston, Mass.*

**Note on the Killdeer in Maine.**— A detail which is perhaps worth preserving of the great flight of Killdeer (*Oxyechus vociferus*) along the coast of Maine in 1888 has never found its way into print. This relates to the duration of the stay of the birds near Portland. A note by myself [1] made the limit December 4. Dr. Arthur P. Chadbourne's article,[2] dealing with the entire subject of the flight along the Atlantic coast, advanced the date to December 10 on evidence obtained from lighthouse keepers. About the middle of the following January, after my note had gone to press, G. E. Staples, surfman No. 2 of the Cape Elizabeth life-saving crew, reported to me that the plover were seen in twos and threes on the Cape up to December 25, 1888, and that his half-brother, W. D. Dresser, shot three of them on that day. Staples said that about twenty birds were noted after December 4, if all which he saw were to be considered as seen but once. It may be added that Hon. John M. Kaler, of Scarboro, told me at the same time that the Killdeer visited Prout's Neck in that town during the height of the flight.— NATHAN CLIFFORD BROWN, *Portland, Maine.*

**The Passenger Pigeon in Missouri Fifty Years Ago.**[3]— In the issue of 'The Youth's Companion' of February 9, 1911, under the head of Nature and Science, I notice an article on the Passenger Pigeon. You say the latest record of a great flock noted by Mr. Wright was in the Mississippi Valley in 1844. I have seen great flocks of pigeons at a much later date in Missouri.

I was born near Pisgah, in Cooper County, Missouri in 1852. In the latter part of the fifties and the early sixties I saw flocks that, as you say, almost darkened the sky. I shall try to tell you how they looked to me and when I saw them, asking you to make due allowance for a boy's method of fixing dates.

On the Moniteau, a creek that runs through Moniteau and Cooper counties, about four miles from Pisgah, is a stretch of land known to this day as "The Pigeon Roost," and there they came by millions. I have watched them for hours.

As I remember, they would start out early in the morning for their feeding grounds and in the afternoon, about four o'clock, they would begin returning to this roost. From that time until it was too dark to see, I have watched that unbroken line stretched against the sky as far as the eye could reach. Not in straight lines they flew; I remember thinking it looked like some mighty river winding its way through the air. In the roosting place the trees were broken in pieces by them and thousands would be left crippled or killed — for the foxes and other wild animals to feed upon.

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[1] Auk, VI, p. 69.

[2] Auk, VI, p. 256.

[3] This and the following note on the Passenger Pigeon were kindly transmitted by the editors of 'The Youth's Companion.'

I remember once in the fall of the year, perhaps November, it was a very windy day, they began alighting within fifty yards of our house in a grove of sumac bushes which were completely broken to the ground by them. I am sure it is no exaggeration to say that five acres of ground were covered by them. My uncle went out with his old single barrelled shot gun and brought in a sack full. He gave us a common sized water bucket full.

In the sixties the method of fattening cattle for the market was to cut the corn in the fall and shock it. These shocks were afterward hauled out and scattered on the ground for the beef steers. As a matter of course a great deal of shelled corn was left on the ground. I have seen those lots literally covered with pigeons. My brother, three years older than myself, was allowed to handle a gun but I was n't old enough, so all I might do was watch him and pick up the pigeons. He came in one day and measured what he had gotten at five shots. It was one of those large old time dish pans and it was even full. I thought if I had had the gun I should have killed a barrel of them. As a matter of fact, though, they were shy and a little difficult to shoot, the least noise or movement frightening them to instant flight.

This was, I am sure, as late as 1862, for my father was in the army and the only way we could keep a gun was to hide it in a hollow tree when not in use, for if the "Federals" did n't get it the "Rebels" would if kept in the house.

I left Cooper County in the spring of '65. Whether pigeons were seen here after that I do not know.

We came to this (Cass) County, since then I have seen a few small flocks and killed two or three pigeons.

The last I ever saw was here on the farm where I now live. There must have been ten or twelve of them sitting on an old dead tree, their favorite resting place, I had my gun and I thought I would surely have pigeon for dinner, but just as I was ready to shoot away they went, and little did I think, as I watched them disappear, they were the last I should ever see of a species of bird that was once numbered by the millions. This I think was in 1882 but it may have been a little earlier.

They are certainly gone, and who can explain it? Surely the hunters are not responsible for it in this instance and in so short a time.

With them have gone the Prairie Chicken, the Wild Goose and the Pheasant [Ruffed Grouse].

From 1860 to 1870 they were to be found in this State in great numbers. Now a Prairie Chicken is rarely seen, and only once in a very great while one may hear the once familiar "honk! honk!" of the Wild Goose, but he flies so high one scarcely can see him. I have not seen a native pheasant for twenty-five years.

I have watched, with much interest, the efforts of our legislatures to stock our country with new varieties of game, and have wondered if some-

thing, instead, might be done with reasonable success, to restock with some of the old friends so numerous here in the early days.

Such a movement would have the hearty coöperation of every reputable citizen of this portion of the country, as does every effort on the part of the Government to protect our remaining game.— THOS. J. GEORGE, *Gunn City, Mo.*

**Passenger Pigeons in Eastern Iowa, in 1856–1860.**— My father, Gustavus Allbee, moved with his family from Rockingham, Vermont, to Davenport, Iowa, reaching the latter place December 6, 1855. We lived in Davenport during the winter, moved to a farm 14 miles from there in March, 1856, and to another farm near by, upon which I now reside, in March, 1857; and although but a mere boy at the time, I very distinctly remember flocks of these pigeons passing both homes, that were miles in length and streamed over, reaching further than the eye could reach in either direction. Equally distinctly I recall sitting in a clump of bushes most of an afternoon with my uncle as he shot his bag full of them; also of how I enjoyed eating them afterwards.

As they passed over this home they were here as late as 1857, and I feel quite positive they appeared for two or three seasons after we came here, or up to 1859 or 1860, but I may be mistaken as to this. But that uncle shot the pigeons on this place and that I ate them here, and that mile after mile of them passed over me as I worked in the fields on this farm is beyond any doubt whatever. My uncle sometimes sang, "If I could shoot my rifle clear at pigeons in the skies, I'd bid farewell to pork and beans and live on pigeon pies."— E. A. ALLBEE, *Montpelier, Iowa.*

**Old Notes on the Passenger Pigeon** (*Ectopistes migratorius*).— In an old note book formerly belonging to Mr. Luther Adams of Townsend, Massachusetts, and loaned me by one of his descendants, I have copied verbatim some interesting data contained therein relating to the Passenger Pigeon. Mr. Adams, who was a farmer and horticulturist, availed himself of the opportunity afforded him by netting these birds, and the old nets which he used, with many feathers clinging to them, are still on the premises. As a record of what took place in the movements of these birds from August 26, 1847, to September 11, 1848, in this particular locality, it is particularly interesting, as it gives the data for the spring and summer months of 1848. Townsend, is 48 miles from Boston, the country is springy and hilly, with hard woods (many chestnuts) and pine. The pigeon stand was located on a high knoll, which is now covered with pine trees a quarter of a century old. The number of pigeons taken in 1847 was 5,028; in 1848, 1,926 were taken.

*"Pidgeon Bate 1847.*

found 9 bushel of Buckwheat
paid Benj Barret four dollars and fifty cents for Buckwheat
paid Jonas farnell $2.00 for wheat
paid Saml Manning $1.50 for wheat
paid Edson $1.00 for work
paid Randal Cudry $3.00 for use of place
paid John Adams $0.50 for use of place
paid seventy-five cents for other articles.

*The amount of Pidgeons taken in 1847.*

| | dozen |
|---|---|
| Aug. 26 caut sixteen dozen | 16 |
| Sept. 2 | 61½ |
| " 4 | 25½ |
| " 6 | 58 |
| " 7 | 42 |
| " 8 | 52½ |
| " 11 | 36 |
| " 13 | 34½ |
| " 16 | 8 |
| " 17 | 52½ |
| " 20 | 4 |
| " 23 | 10½ |
| " 24 | 9½ |
| " 27 | 8½" |

*"Pidgeon Bate 1848.*

Apr 29, found one bushel of wheat $1.50

*The amount of Pidgeons taken in 1848.*

| | dozen |
|---|---|
| May 1 three dozen & eight | 3.8 |
| " 8 | 3.1 |
| " 15 | 3. |
| " 22 | 4. |
| " 29 | 3. |
| June 1 | 3. |
| " 5 | 2¼ |
| " 7 | 5½ |
| " 9 | 7¼ |
| " 12 | 2½ |
| " 16 | 5½ |
| " 19 | 2¼ |
| " 23 | 2¾ |
| " 26 | 3. |
| July 3 | 2½ |
| " 6 | 5. |
| " 14 | 2. |
| " 17 | 3. |
| Aug. 21 | 2. |
| Sept. 4 | 8. |
| " 5 | 9¼ |
| " 6 | 55 |
| " 7 | 6½ |
| " 11 | 19½" |

GEORGE H. MACKAY, *Nantucket, Mass.*

**The Passenger Pigeon — Only One Bird Left.**— In 'The Auk' (Vol. XXVI, p. 429, 1909) I published a note entitled "The Passenger Pigeon — Only One Pair Left," it is with deep regret that the title must now read as above. On July 10, 1910, the male bird died at the age of about twenty-five years. Mr. S. A. Stephen, General Manager of the Cincinnati Zoölogical Society, writes me that the bird apparently died of old age not having shown any signs of tuberculosis, or other disease, but extreme weakness prevented his walking around. The remaining female, and probably the last living one of her race, came from the flock of the late Prof. Charles O. Whitman, and is now about fourteen years old, and in good health and plumage. The male bird was not preserved on account of the poor state of plumage.— RUTHVEN DEANE, *Chicago, Ill.*

**A Recent Turkey Vulture** (*Cathartes aura septentrionalis*) **in Maine, and Revision of Earlier Records.**— On August 27, 1910, a Turkey Vulture was shot on Cape Elizabeth, Maine, and on the 30th it came into my hands. I was told that it swooped down among some chickens, and on the supposition that it was a hawk it was shot. It proved to be an adult female, with moult well advanced. It was rather fat, and with stomach nearly empty weighed about $4\frac{1}{4}$ pounds, about two pounds less than the weight given by Audubon. It carried a No. 8 shot embedded and healed in the left ulna and had lost the distal joint of the middle toe of the left foot, and the next joint was stiff.

This is apparently the fifth specimen to be taken and preserved in the State, though the number of accepted occurrences will now number nine.

The statements of Josselyn, Pennant and Wilson cannot be regarded as affording any specific Maine records. The first appears in the Boardman and Verrill list of 1862, based upon a specimen taken near Calais.[1]

The second is chronicled by Mr. Nathan Clifford Brown, in the 'Rod and Gun,' December 15, 1874. This is the bird taken "about the first of November" that year in Standish, Cumberland County. Later compilers have accredited this to Mr. Everett Smith, who also recorded it.[2] The 'New England Bird Life,'[3] in quoting from Smith, as cited, dropped the name of the town (*i. e.*, Standish) and the word "County," the record there appears as Cumberland, Maine, thus taking the aspect of another record, though fortunately the citations makes the case clear to anyone having access to the literature in the case.

The third specimen, taken at Buxton about the last of December, 1876, is also recorded by Mr. Brown.[4]

The fourth, taken at Denmark, Maine, March 15, 1883, by Mr. Abel Sanborn, has been the source of considerable confusion. Apparently this was first reported in the Lewiston 'Gazette,' of April 20, 1883 (*fide* Gushee), and what evidently is a clipping of this article is published by A. R. Gushee in 'Forest and Stream,' April 26, 1883.[5] The place is not stated, though the capture is accredited to Abel Sanborn of East Fryeburg. In the same journal for May 10, Everett Smith presents the same record, giving the date of capture as March 15, 1883, East Fryeburg.[6] In 1898 Mr. James C. Mead corrected the place of capture, so the record should stand, Denmark,[7] Maine, March 15, 1883.

In the 'List of the birds of Maine' by O. W. Knight, this last bird appears under both, the Turkey Buzzard (Gushee)[8] and Black Vulture (Smith)[9].

[1] Proc. Boston Soc. N. H., IX, 122.
[2] Forest & Stream, III, 324 (Dec. 31, 1874).
[3] Vol. II, 137.
[4] Proc. Portland Soc. N. H., II, 23.
[5] Vol. XX, 245.
[6] *Ibid.*, 285.
[7] Maine Sportsman, July, 1898, p. 13.
[8] Bull. 3, Univ. of Maine, 57.
[9] *Ibid.*, 58.

Unfortunately in changing this, the original citation seems not to have been consulted, and so two other errors have arisen, together with a typographical error due to one of these.

The first error is that Mr. Smith [1] has been made to appear to have recorded a Black Vulture rather than a Turkey Buzzard. Second, an error of one year has been made in the date,[2] through citing a secondary record. Third, the typographical error makes the record stand 1892,[3] nine years later than the actual date.

There are also four instances of the occurrence of this bird recorded where they were seen and not taken, or taken and not preserved, but identified by description. These are, one seen at Whitney's Hill, Bangor, by the late Manly Hardy,[4] two caught in bear traps, and described to Mr. Hardy [5] and one seen at Scarborough by Ruthven Deane.[6] Thus the Maine records of the Turkey Buzzard should stand:

One taken near Calais prior to 1863 (Boardman, Proc. Boston Soc. N. H., IX, 122).

One taken at Standish, November, 1874 (Brown, Rod and Gun, December 15, 1874).

One taken at Buxton, December, 1876 (Brown, Proc. Portland Soc. N. H., II, 23).

One taken at Denmark, March 15, 1883 (Gushee, F. & S., XX, 245; Smith, F. & S., XX, 285, and Mead, Maine Sptsm., V, July, 1898, 13).

One seen at Whitney's Hill, near Bangor, prior to April, 1897 (Knight, Bull. 3, Univ. of Me., p. 57).

Two caught in bear traps, prior to 1905 (Deane, Auk, XXII, 79).

One seen at Scarborough, Maine, August 5, 1904 (Deane, Auk, XXII, 78).

One taken at Cape Elizabeth, August 27, 1910 (recorded here).— ARTHUR H. NORTON, *Portland, Me.*

**The Pigeon Hawk** (*Falco columbarius*) **Wintering on the Coast of South Carolina.**— On November 29, 1910, I saw an adult of this hawk flying rapidly over Oakland Plantation, Christ Church Parish, and on January 14, 1911, I observed a fine adult specimen in my yard, which was on the top of a Pride of India tree, but failed to secure it. Again on January 16, 1911, the same bird was observed by the writer, but although I followed it for nearly half a mile I was unable to get a shot at it, as it was very restless.

The coloration appeared to be very dark — in fact almost black — suggesting the probability of its being a representative of *Falco columbarius suckleyi*.

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[1] Auk, XXII, 79, and Birds of Maine, 213.
[2] Auk, XXII, 79.
[3] Birds of Maine, 213.
[4] Bull. 3, Univ. Me., 57.
[5] Auk, XXII, 79.
[6] Auk, XXII, 78; Journ. Me. Orn. Soc., VII, 19, 20.

During the past thirty years that I have spent in observing birds, this is the first instance that I have ever detected this hawk in the winter.— ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

**Recent Winter Occurrences of Two Hawks in Maine.**— Evidence accumulates to the effect that the Pigeon Hawk (*Falco columbarius columbarius*) is to be found in Maine in winter more often than has generally been supposed.[1] I saw it twice during the season of 1910–1911 at Portland. On January 24, 1911, at 11 A. M., one flew across Temple Street, in the heart of the business section of the city, distant about a hundred yards from the window at which I was standing, rose gradually and disappeared towards the west. On February 7, at 3.30 P. M., during a snowstorm, one flew down Middle Street, passing the same window within about thirty feet and clearly indicating the plumage of immaturity.

The chances are that the Sharp-shinned Hawk (*Accipiter velox*) is also a more frequent visitor in Maine in winter than it has been thought, for there has not been a great deal of systematic observation here at that season. I believe that only three trustworthy records of its appearance have yet been made,[2] though it is stated in the Journal of the Maine Ornithological Society, Vol. XI, pages 15 and 16, by Miss Nellie F. Dunton, that she saw a Hawk, "probably a Sharp-shinned," in winter at Winnegance. I happened upon a fourth instance, February 11, 1911, when I saw one of these Hawks near the western end of Danforth Street, Portland, about 2 P. M. It perched for a few moments in a tree overlooking the harbor, then flew away in the direction of Cape Elizabeth.— NATHAN CLIFFORD BROWN, *Portland, Maine.*

**The Saw-whet Owl in Georgia.**— On January 1, 1911, I procured a fine specimen of the Saw-whet Owl. It was a female in what seems to me to be an extremely gray phase of plumage. The reddish tinge on the back and wings is so very slight as almost to require a stretch of the imagination to see any red or brown there. The streaks on the breast are, however, fairly ochraceous. It was an old bird, measuring 7½ inches. The ovaries were numerous and some of them swollen to the size of No. 6 or No. 8 shot. No traces of undigested food could be found.

The locality was a small island known as Buck Hummock, just south of Tybee. The bird sat quite still in a clump of bushes and showed no uneasiness at our presence. In fact my companion had ascended and descended a large pine tree after eagle's eggs, passing within six feet of the little owl, and we did not discover it until we were seated on the ground lunching. The specimen has been mounted for Mr. W. J. DeRenne of this city, owner of the Wormsloe collection.

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[1] Norton, Auk, XXVII, p. 207; Brown, l. c.

[2] Smith, Forest and Stream, XX, pp. 24–25; Brownson, Journ. Me. Orn. Soc., VII, p. 21; Norton, ibid., IX, p. 9.

I am not aware that this species has been before detected in Georgia. I found it once in South Carolina, many years ago, and a specimen was secured there by Mr. Alfred Cuthburt. It is now in the collection of Dr. E. E. Murphy of Augusta, Ga.— W. J. Hoxie, *Savannah, Ga.*

**A Snowy Owl in New Jersey.**— A Snowy Owl (*Nyctea nyctea*) was shot on the line between Orange and South Orange, New Jersey, on November 19, 1910. The bird was secured by a man of the name of Adams, in the employ of Mr. L. Bamberger, of 602 Center Street, and was placed for mounting in the hands of Mr. Ray Baldwin, a taxidermist of Newark. A letter written to the latter asking for particulars as to whether the bird was unusually white, as indicated by Mr. Adams, failed to elicit any statement.— B. S. Bowdish, *Demarest, N. J.*

**Northern Pileated Woodpecker in Massachusetts.**— Mr. Henry P. Meade has kindly given to me a Northern Pileated Woodpecker (*Phlæotomus pileatus abieticola*) which he shot in Harvard, Mass., October 15, 1910. It is a young male. This is an extremely rare bird in this locality.— John E. Thayer, *Lancaster, Mass.*

**Breeding of the Raven in Pennsylvania.**— The extreme and increasing rarity of the Northern Raven (*Corvus corax principalis*) in the eastern United States makes it advisable to place on record the nesting of a pair in Center County, Pennsylvania. In 1909 the nest was found on a ledge or shelf in a nearly perpendicular wall of rock in a gap in the mountains. In middle April, when found, it held three full-fledged young. In 1910 a nearly finished nest was found on the same cliff on February 19, and the set of five eggs was collected on March 1. A second set of five eggs was found on March 16, and Mr. D. E. Harrower found a third set of four on April 10.

In early May (6–7), 1910, while back in Huntington County, I saw a pair of Ravens with a young one scarcely able to fly and easily distinguishable by its weak, crow like notes.— Richard C. Harlow, *State College, Pa.*

**Clarke's Nutcracker in Illinois.**— While in Milwaukee recently, Mr. Shrosbree, chief taxidermist of the Milwaukee Public Museum, told me of the capture of a specimen of *Nucifraga columbiana* by his brother, near Chicago. Upon inquiry of Mr. Frank Shrosbree, he informed me as follows: "I shot the Clarke's Nutcracker on the 9th of October, 1894, at Gross Point, Illinois." Gross Point is a small German settlement in Cook County, about 15 miles northwest of Chicago. This is, I believe, the first record of this species for Illinois.— Henry K. Coale, *Highland Park, Ill.*

**Evening Grosbeak** (*Hesperiphona vespertina*) **at Lyons, N. Y.**— As this bird is such a very rare winter visitant in this section, I take the liberty

of reporting its occurrence in our vicinity. During the latter part of December, the Evening Grosbeak was reported in Rochester, N. Y., the first time seen there since the winter of 1889–90, but it had not been observed here. Since then I have been watching carefully, hoping to make a record of this beautiful bird in our county. About ten days ago they were first seen in Lyons. Since that time they have been reported, almost daily, as occurring in flocks of from 6 to 10, in some section of the town, and to-day, February 4, 1911, I recorded 30 of these birds feeding about in the maples and picking up the buds from the ground which a recent wind and wet snowstorm had shaken from the trees. Both sexes were represented almost equally in the flock and exhibited marked tameness.

It will be gratifying indeed if the erratic travels of these birds become more frequent and eastern people have the pleasure of becoming better acquainted with this common bird of the Northwest.— E. Earl Elliott, *Lyons, N. Y.*

**The Evening Grosbeak in New Hampshire.**— We have with us here at this date (Jan. 2, 1911) a flock of eight Evening Grosbeaks. They have been here for a month, and have been seen every day on one of our back streets on a small ornamental tree which is covered with seeds on which they feed. They seem to make their headquarters in some pines near by. They come out to feed two or three times a day.

They are very handsome and quite uniformly colored though there is a slight difference in shades. They are very tame and will not notice anyone that may be within a few feet of them and they have had many visitors as they are quite a curiosity in this vicinity as they are in any part of New England.— C. H. Storrs, *Lebanon, N. H.*

**The Evening Grosbeak at Lancaster, Mass.**— On Sunday, January 15, 1911, as I was walking along the main street, I was attracted by a peculiar whistle, and looking around I saw three Evening Grosbeaks (*Hesperiphona vespertina vespertina*) light on the ground under some spruces, not twenty-five feet from where I stood. They were eating some kind of seeds. There was a male in fine bright plumage and two dull-colored birds, which I took to be females. These are the first Evening Grosbeaks I have ever seen in Lancaster, although they have been reported from the next Town (Leominster).— John E. Thayer, *Lancaster, Mass.*

**Harris's Sparrow** (*Zonotrichia querula*) **in Southern Idaho.**— On January 1 of this year I took a Harris's Sparrow, female, from a flock of Gambel's (*Z. l. gambeli*) among the brush on a creek bank near this place. There were perhaps 50 birds in the flock, and I am confident that there were several more of the Harris species; in fact, I identified another at a distance of not more than 20 feet. The 1910 Check-List records it as accidental in Washington, Oregon, and California. Apparently this

capture extends its range and makes a new record for Idaho. I believe the bird is a not rare winter resident in this section, as I have several times noted a large sparrow resembling the Harris's, though except on this one occasion I have been unable to make a positive identification.— L. E. WYMAN, *Nampa, Idaho.*

**Nesting of the Rose-breasted Grosbeak near Philadelphia, Pa.**— In 'The Auk,' 1907, p. 442, I recorded the nesting of the Rose-breasted Grosbeak (*Zamelodia ludoviciana*) in Philadelphia County, Pa., along the northeastern boundary, in the Carolinian fauna, in which zone it is a rare breeder in this vicinity. This nest was found at Torresdale, along the Poquessing Creek.

In 1909, I found three nests of the Rose-breasted Grosbeak on the other side of this stream in Bucks County, at Andalusia, directly opposite Torresdale, and practically the same locality. The first was discovered on May 18 and held two fresh eggs; the others were found on June 18. One was a new nest and the other a deserted one, containing broken egg shells. Another nest was found at this locality in June, 1909, by Dr. J. B. Ball, of this city, in which were also fragments of eggs, and was an abandoned nest also.

During the summer of 1910, the doctor and I were unsuccessful in our limited searches for the nest of this bird at both of these localities along the Poquessing Creek, although on both of our trips we observed several of the birds.

On April 23, 1910, I observed several Rose-breasted Grosbeaks at both of these localities, which is much earlier than they usually arrive in the vicinity of Philadelphia. The nesting of the bird here as early as May 18, is also an unusual occurrence.— RICHARD F. MILLER, *Aramingo, Philadelphia, Pa.*

**The Orange-crowned Warbler in Pennsylvania.**— During the spring of 1909 it was my good fortune to be able to establish the occurrence of this bird at State College, Center County, Pennsylvania. During a late flight of warblers on May 16 I observed several which I took to be Tennessee Warblers but on collecting a pair of them, they were found to be of this species. There were probably six or seven in the flock and another taken was too mutilated for preservation. When seen the birds were in willows along a small stream in company with Nashvilles and Northern Parulas and a few Redstarts. This date is remarkable because of the fact that the few Pennsylvania and New Jersey specimens have almost invariably been taken in late February or early March.— RICHARD C. HARLOW, *State College, Pa.*

**The Cuban Pine Warbler.**— I beg to report having found the Cuban Pine Warbler (*Dendroica pityophila* Gundl.) in the pines at Mayari, on

the north coast of Santiago Province in eastern Cuba on May 20, 1909. These pines are locally known as "Pinares de Mayari," and extend over an area of some 50 square miles, the ground underneath them being covered to a depth of from 6 to 12 feet with loose iron ore which is being crushed by the Spanish American Iron Co. and sent to the "States." The altitude of the Pinares is 1800 feet above sea level.

It is worthy of note that this warbler is not found in the pines on the south coast of this province, where I have looked for it diligently; nor is it found, according to Dr. Gundlach, on the Ile of Pines where there are to be found large extents of pine woods. Although there are clumps of other timber scattered here and there through the pine forest *D. pityophila* is not to be found in them, it living strictly on the pines and usually in the highest branches, where were it not for its song it would be next to impossible to locate, as it is very difficult to see among the branches. I have never seen it on the ground and believe it does not leave the trees.

On the above date I found full grown young flying about showing it to be an early breeder. Heretofore it has been reported only from western Cuba, where Dr. Gundlach found it.— CHARLES T. RAMSDEN, *Guantanamo, Cuba.*

**A New Breeding Record for Wayne Co., Michigan.**— In a hawthorn pasture on P. C. 669, Ecorse Township, August 13, 1910, I found a nest of the Mockingbird containing three young that would have flown in a day or two. The adult birds were present in dirty and worn plumage with a suggestion of molt and with sexual organs reduced to minimum size, indicating a conclusion of the breeding season. The nest was placed two and a half feet above the ground in a hawthorn tree, a typical Brown Thrasher site, but it differed somewhat in construction from the nest of that species or the Catbird. The foundation was composed entirely of dead hawthorn twigs, those with the greatest profusion of thorns being selected. The sides were of the same material except that near and on the top an abundance of small dried aster plants were interwoven, including the stems, leaves and flowers. The inner foundation consisted of black horse-hair, about a quarter of an inch thick on the bottom and thinning to nothing an inch up the sides; this and the inner sides of the walls were concealed beneath a covering of dried aster leaves and flowers. The nest presented an excellent example of protective coloration, for viewed from any angle above its surface the general aspect of gray blended with the backs of the young birds. On the other hand it was very poorly concealed, in fact, I first saw it at a distance of about thirty yards. Later, both the pasture and surroundings were thoroughly searched but no trace of a previous brood was found. Of the three nestling Mockingbirds two were males and the other a female.

Southern birds occasionally appear here during the spring migrations, apparently carried north in flocks of other species. This may explain the

presence of these Mockingbirds. The fact that they were a breeding pair, however, suggests deliberate migration and so late in the season as to derive no guidance from the normal spring movement. This idea is suggested by the breeding Dickcissels that I have found here. One afternoon, in early June, 1899, I searched some ten acres of neglected land that had been my favorite collecting grounds in 1890. There were few, if any, Dickcissels present for I saw none. This was on P. C. 405 and within the present city limits of Detroit. I happened to be in the neighborhood on July 30 and was at once attracted to this field by the songs of about a dozen males and later estimated the colony to consist of fifteen pairs. They never returned to that locality and, with the exception of one bird in Monguagon Township and two in Fairview Village in 1904, none were seen until 1906. Practically all my spare time in 1906 was devoted to a portion of Grosse Pointe Farms and Township and probably the male noted June 10 was the first arrival, and the first female was seen June 24. Three nude young in the nest were located July 29, and a female was flushed from her three eggs August 5. In 1907 I first visited this locality June 30 but found only one pair and their nest containing two fresh eggs. Three additional pairs were present July 7, which was my last visit until 1909–10 when not a bird could be found there nor anywhere in the county.

On consulting available data regarding Mockingbirds breeding north of their normal range I find that from one to several pairs would nest in some locality for a season or two and then disappear, exactly as did the two above colonies of Dickcissels, which seems to place both species here in the class of irregular invaders. Time will probably show that the present occurrences of Mockingbirds in the north are efforts in the direction of permanent summer residence. Last summer was unusually dry and warm here and our local pair may have traveled the whole distance through conditions not materially different from those in their normal range.— J. Claire Wood, *Detroit, Mich.*

**Townsend's Solitaire in Eastern South Dakota.**— A specimen of *Myadestes townsendi* was closely observed at Vermillion, extreme southeastern South Dakota, on January 9, 1911. Having observed this species at several localities, from Alaska to Arizona, I have not the slightest doubt as to the identification. This species breeds sparingly in the Black Hills, and this individual may have been driven here by a severe west wind which prevailed during the first week of the month.— Stephen Sargent Visher, *State University, Vermillion, S. D.*

**A Remarkable Number of Robins in Maine in Winter.**— The winter of 1910–1911 was rather steadily cold in southern Maine. December and January brought little snow, and the ground was bare most of the time during those months; but in February much snow fell. Nearly if not quite throughout the season there were many more Robins in Portland and its

neighboring towns than are to be expected there in winter, and their abundance for a part of the time appears unprecedented. Reports of the birds began to reach me early in December, but Miss Caroline M. Stevens, of Portland, whose father's house occupies a site especially favorable for observation, tells me that she noticed unusual numbers late in November as well as afterwards. On December 31 I found a least twenty-five feeding in some open lots in the Western Promenade section of the city. The next day I counted more than a hundred scattered about the same lots, in hedges, in the trees of an old orchard and on the ground; there were not less than a hundred and twenty-five of them. On each of the five succeeding days I found an equal number in the same locality. There were but forty in evidence on January 6, but on January 7 there were more than two hundred concentrated within a distance of a hundred yards on Arsenal Street, while several dozen others were grouped in trees not far away. On January 8 and 9 this large flock was still in the neighborhood. Then a week passed in which I could not find a single individual, though I made a search daily of the district previously frequented by the birds. On January 17 a flock of twelve appeared on Arsenal and Bramhall Streets. For the subsequent ten days my record was as follows, the birds always occurring in the same part of the city:

January 18, twelve birds.
" 19, none.
" 20, fourteen birds.
" 21, ten birds.
" 22, two birds.
" 23, twelve birds.
" 24, none.
" 25, none.
" 26, eleven birds.
" 27, eleven birds.

Ten days now elapsed during which I saw none. On February 6, however, I came upon a small flock — perhaps half-a-dozen birds — at the corner of Free and South Streets, in the center of the city. They were moving through the tops of tall elms and did not long remain in sight. A good deal of fruit was still left on some of the mountain ash trees; but, in spite of frequent search within the limits of Portland, I could find no more birds until February 25, when I discovered one in the Western Cemetery.

In the meantime from many points near the city reports had continued to come to me of the presence of great numbers of Robins. The newspapers had also taken up the subject. I heard directly from trustworthy persons in Scarboro, Cape Elizabeth and Old Orchard and on Cushing's, Peaks and Great Chebeague Islands. The largest flocks were generally said to contain from thirty to forty birds, but I was told of one on Cape Elizabeth of one hundred or more and one on Cushing's Island of fully two hundred. The main body apparently withdrew from all these places before or about

the middle of January, as was the case in the city. Nevertheless Mr. Robert T. Sterling, of Peaks Island, reported a flock of thirty or forty on February 19.

The food of the birds which I watched in Portland consisted mainly of mountain ash berries. The trees were heavily laden with fruit, this year, and there are at least fifteen of them in the Western Promenade section, which may be roughly estimated as covering fifty acres. A fine buckthorn hedge was soon stripped of an abundant crop of berries: in fact the Robins ate these with evident preference. They appeared not to like barberries, of which they might have had an ample supply; only once did I see any birds testing them, and then but a few. Suet and other contributions of sympathetic householders were untouched so far as I observed, and no attention was paid to nests of the brown-tail moth.

The sexes were about equally represented amongst the birds. No other species associated with them; but on January 9 I saw several of them attacked and vigorously chased about by English Sparrows. The large flocks were restless and noisy; the small flocks of later date were sluggish and usually silent.— NATHAN CLIFFORD BROWN, *Portland, Maine.*

**Winter Ranges of Geese on the Gulf Coast; Notable Bird Records for the same Region.**— The writer noted in the July, 1910, Auk, the fact that Blue Geese (*Chen cærulescens*) were very abundant in the Mississippi Delta and the vicinity of Vermillion Bay, La. Further field work under authorization of the Biological Survey during the present winter shows that this is the only part of the Gulf Coast that is visited by large numbers of this species. At Cameron, La., further west they were numerous November 28 to December 6, 1910, but over-shadowed in numbers by both Canada and Snow Geese, while at Gum Cove in the southwestern part of Cameron Parish, La., they were scarce, only a few being seen now and then among the Snow Geese. The writer saw two here January 2. One was seen at Lake Surprise near Galveston, Texas, December 12, 1910, and two at Matagorda, Texas, December 21.

These observations are in harmony with previous records of the occurrence of the Blue Goose, and point to the following conclusions: the center of abundance of the species is a narrow strip extending along the coast of Louisiana from the Delta of the Mississippi to a short distance west of Vermillion Bay. To the eastward the bird is known only as a straggler, and to the west it diminishes gradually in numbers, being scarce on the extreme western coast of Louisiana and rare on the Texas coast.

Passing to the Snow Goose (*Chen hyperboreus*) it was noted in 1910 that in the Mississippi Delta and Vermillion Bay regions, there was one Snow Goose to about each 25 Blue Geese, and that the Snow Geese formed no flocks of their own. At Cameron, La., during the present season (Nov. 28–Dec. 6, 1910) they were abundant, and at Gum Cove (Jan. 2–5, 1911) they were very abundant. Flocks containing many thousands were seen daily in this locality. The species was common at Lake Surprise (Dec.

8–16, 1910) and Matagorda, Texas (Dec. 20–23, 1910) but only one small flock was seen at Rockport (Dec. 25). Thus it appears that the center of abundance of Snow Goose on the Gulf Coast is southwestern Louisiana. Like the Blue Goose it decreases rapidly to the eastward (though not so abruptly) and diminishes more gradually westward and southward along the Texas coast. So far as the Louisiana coast is concerned, the ranges of these two species are complementary. The Blue Goose has its stronghold in the eastern section, the Snow Goose in the west, and they occupy the intervening territory in numbers inversely proportional to the distance from the center of abundance.

The same general law that appears to govern the distribution of these two species applies also to the White-fronted Goose (*Anser albifrons gambeli*). The only place on the Gulf Coast where this species is abundant is Gum Cove, La. Small numbers were seen at Cameron, and according to the testimony of hunters the species is rare at Vermillion Bay and the Delta. Only small numbers occur on the Texas coast.

Each of the three species above mentioned has its center of abundance, to the eastward and westward of which it becomes less numerous, the decrease in numbers being most abrupt to the eastward. This law does not apply to the Canada Geese, except perhaps to the smaller ones probably typical of the subspecies *hutchinsi*. These little geese equal their larger relatives in numbers at Gum Cove, La., and Galveston, Texas. They were not noted at Vermillion Bay or the Mississippi Delta, La., and occur in reduced numbers further south (than Galveston) along the Texas coast. The large Canada Goose is abundant in suitable places from Rockport, Texas, at least to Dickerson Bay, Fla. As it is rare along the Atlantic coast from South Carolina southward, practically all of the Gulf Coast birds must be of Mississippi valley origin. Other facts point to the inference that western Florida gets the bulk of its waterfowl via the Mississippi valley. One especially striking instance is the occurrence of *Marila collaris*, a rare bird on the south Atlantic Coast, as the most important game duck in certain parts (such as Micanopy) of northwestern peninsular Florida.

A wandering Blue Goose which the writer was fortunate enough to get on St. Vincent Id., Fla., November 1, 1910, was perhaps following this waterfowl trail. It has the distinction of being the second Florida specimen recorded.

Other noteworthy records are:

*Mergus serrator*. Two specimens taken at Rockport, Texas, Dec. 29, 1910.

*Clangula clangula americana*. Lake Surprise, Texas, Dec. 10, 1910; Rockport, Texas, Dec. 29, 1910.

*Harelda hyemalis*. Lake Surprise, Texas, Dec. 15, 1910. Second specimen from the State.

*Branta bernicla glaucogastra*. A specimen in Rockport, Texas, mounted by Andrew Sorenson, and said by him to be the only one ever known to be taken there, furnishes the first record of the species for the State.

*Phœnicopterus ruber.* One was seen at Cameron, La., Dec. 6, 1910. Apparently the first definite record for Louisiana.

*Querquedula cyanoptera.* Dr. A. K. Fisher sends me notes on this and the following species. A Cinnamon Teal was killed by Mr. John Dymond at the Delta Duck Club, La., Jan. 15, 1911, and Mr. F. M. Miller, President of the Board of Game Commissioners, says that the species is not uncommon in Louisiana this year, he having reports of about 20 specimens taken.

*Melopelia leucoptera.* One of a pair was collected by Mr. Gus Smith at Venice, La., about Nov. 20, 1910.— W. L. McAtee, *Biological Survey, Washington, D. C.*

**Enormous Death Rate among Water Fowl near Salt Lake City, Utah, Fall of 1910.**— In reply to a letter of inquiry I am in receipt of some interesting information (dated Dec. 10, 1910) from the State Game and Fish Commissioner of Utah, Mr. Fred W. Chambers of Salt Lake City: "... . will state that early in September, 1910, a malady came amongst the ducks and wild water fowl of this section, which has proven very disastrous, it being estimated that over two hundred thousand (200,000) have died from this disease. Mr. J. H. Mohler, Chief of Division of Pathology, Washington, D. C., who took the matter up, states that the disease is intestinal coccidiosis — which from appearances is a sort of cholera. On account of having scarcely any rain during the past season, the water was very low, and was to a great extent used for irrigation purposes. The ducks nested and hatched in the various sloughs, and the young being unable to fly, subsisted in the waters of said sloughs, which from long drought had become stagnant and filthy. The disease is supposed to have started in this way. Conditions have cleared up and very few sick ducks can now be found. The disease is not infectious to animals and people, as has been reported." — Henry K. Coale, *Highland Park, Ill.*

**Notes on Some Species from Eastern Oregon.**— The winter of 1909–1910 was perhaps the most severe that has been experienced in eastern Oregon during the past 20 years. The unusual amount of snow, as well as the long continued cold, caused the death of many birds and to some extent forced others to change their normal habits.

A flock of a dozen *Oreortyx* was several times seen feeding on stable refuse hauled out from the town of Vale, Malheur County. Just where these wanderers came from would be a problem, as the nearest body of timber, the natural home of the species, is about 75 miles to the westward, and so far as I can learn the species is not found there.

The unusually deep snow handicapped the jackrabbits, which were very abundant at this time, rendering their capture by the ever hungry coyote merely a matter of a moment's effort. Early in the winter I began to notice that a small company of Magpies accompanied each and every

coyote. A scattered flock, flying from sage-bush to greese-wood, across the hills, was, in almost every instance, preceded by a "Government Dog," and the killing of a rabbit several times per day was the inducement to the feathered escort, which shared freely in the leavings of the wolf.

Early in the spring of 1910 a male English Sparrow was seen 12 miles from Vale, in the sage-brush, vainly attempting to induce a female Brewer Blackbird to begin housekeeping with him. So far was the wanderer from his fellows in Vale that I was surprised, never having seen one even half a mile from town before. No more strays were seen until in the fall, when on the upper Willow Creek, near the base of the Burnt River Mountains, I found a small flock of from four to ten on every ranch. This region is some 40 miles from the railroad, the nearest point being Huntington, where the sparrows are abundant. To reach the ranches mentioned a mountain range must be crossed and long miles of sage plains and lava mesas, a region as little to their liking as a wood-yard to a tramp. It is more likely that they found their way up the valley from Ontario, some 70 miles, but through country that is entirely unsuited to the requirements of this species as we have regarded them in the past. The ranchers told me that they had not seen any sparrows until a month or so before, a statement that was likely true, since only small flocks were seen, and there was no evidence of their having been long resident.

In the spring of 1909 a pair of Bullock Orioles, migrating through the sage plains of eastern Oregon, paused to rest on the derrick of an oil well, several miles from the nearest tree or shrub, save the ever present Artemisia. The drill was temporarily idle and hanging from one of the timbers of the derrick was a frayed rope, resembling the end of a cow's tail. This was taken as a homestead and the nest hung from the loose fibers. Meantime an Arkansas Kingbird selected the end of the huge walking beam as a summer home and built. Before the eggs were hatched it became time to renew operations on the drill and the nests were in danger of destruction. The rope was cut and the end with the oriole's nest fastened to the corner of the derrick out of harm's way, while the Kingbird's nest was removed to a shelf some ten feet distant. Neither species objected in the least, and the young birds were raised amid the clatter of machinery and smoke of forge. In the spring of 1910 the kingbird returned and took possession of the same nesting site, but the rope had been removed and the oriole selected the branches of a sage-bush at the foot of the derrick, where the young were raised in a nest only two feet from the ground.— A. W. Anthony, *Portland, Oregon.*

**Notes on Some Birds Rare or New to Wisconsin.**— In a neat little pamphlet of 51 pages, entitled 'Birds of Oconto County," dated October 27, 1902, Mr. A. J. Schoenebeck of Kelley Brook, Wisc., gives a list of some 254 species, "identified, captured or seen" by him, most of which are in his collection. This list contains the first authentic record of the Water

Turkey (*Anhinga anhinga*) for Wisconsin, of which he says: "Rare visitant. One specimen brought to me in the spring of 1889; shot on the Green Bay shore, and proved to be a male."

A second authentic record of the Black Rail (*Creciscus jamaicensis*) is: "Summer resident; very rare. On June 9, 1899, I met with one of these little rails near the mouth of the Oconto River on the Green Bay shore, but could not discover its nest."

The Eskimo Curlew (*Numenius borealis*) is thus entered: "Migratory; rare. One specimen was brought to me April 27, 1899. This was shot near Oconto."

The Sharp-tailed Grouse is recorded as: "Visitant: rare. On Oct. 27, 1897, I shot an old male of this species near Peshtig's Brook." This is the first record for Wisconsin.

The Chestnut-collared Longspur (*Calcarius ornatus*) is given as "Resident; rare. The nest of this bird I have found twice on the northwest plains of this county." Not previously recorded from Wisconsin.— HENRY K. COALE, *Highland Park, Ill.*

**Long Island Notes.** SOLITARY SANDPIPER (*Totanus solitarius*).— On the 10th of May, at Flowerfield, L. I., I collected a splendid female of this species. Although this is not a rare record, I consider it a very interesting one because upon dissection I found that an egg in the ovaries was very well developed and three others had started to form. It looks as if this bird would have nested at or not far from place where taken.

BLACK-THROATED GREEN WARBLER (*Dendroica virens*).— This bird is a common summer resident at Flowerfield, L. I., where it breeds in the numerous cedar woods. Although I searched carefully during the breeding season I failed to locate a nest. I was just about to give up the search for 1910 when I saw a male fly into the top of one of the cedars, with something in its bill. After he had flown away the female also came with food, and upon looking carefully I saw a nestling perched on a twig near the top of the tree. The birds repeatedly fed this one and did not seem the least disturbed by my presence; further search disclosed two more nestlings.

SHORT-BILLED MARSH WREN (*Cistothorus stellaris*). I collected, at Floral Park, L. I., on October 18, 1910, a fine male of this species. He was among some goldenrod stubble in an open lot.— HENRY THURSTON, *Floral Park, L. I., N. Y.*

## RECENT LITERATURE.

**Swarth on the Birds and Mammals of the 1909 Alexander Alaska Expedition.**[1]— The 1909 Alexander Expedition to parts of the Sitkan district of Alaska not visited by the expedition of 1907 was made by the author of the present paper, assisted by Allen E. Hasselborg of Juneau, during the period from April 1 to October 1, 1909, their means of transportation being a gasolene launch. Sixteen islands and six mainland localities were visited. The report contains a detailed itinerary and a large-scale map of the whole Sitkan district, as now commonly restricted. The material collected consists of 604 bird skins, and nearly as many specimens of mammals. The localities visited are described in detail, followed by a report on the birds (pp. 26–112), another on the mammals (pp. 113–151), and several pages entitled 'Distributional Considerations' (pp. 151–159). The list of birds numbers 137 species and subspecies, the mammals, 27 species and subspecies.

The report on the birds relates to "distribution, moult, variation, and biographical notes." The notes on habits and on the local distribution of the forms in the Sitkan district are often quite extended, as are frequently the notes on individual and seasonal variation. The report is thus an important contribution to the ornithology of the region. While no new forms are described, the material obtained is considered, as far as it goes, as generally confirmatory of the new local forms described by Grinnell in 1910, gathered during the Alexander expedition of 1908 to this same region. The conspecific relationship of *Macrorhamphus griseus* and *M. scolopaceus* is discussed at some length, the conclusion reached being that the two forms are only subspecifically distinct, as given in the last edition of the A. O. U. Check-List (not, however, cited in this connection). *Sphyrapicus ruber* is given as *S. varius ruber*. *Picoides americanus fumifrons* Grinnell is referred to *P. americanus americanus*, the second specimen of this supposed race having "not a trace of the smoky suffusion beneath" shown by the type. The breeding form of *Passerculus* is referred to *P. sandwichensis savanna*, "as a matter of convenience," since it more nearly resembles this eastern form than it does *P. s. alaudinus*. As Mr. Swarth has himself "seen no conclusive evidence" of the intergradation of *Junco hyemalis* and *J. hyemalis oreganus* (the "occasional specimens" combining the characters of both forms he would consider as hybrids), *oreganus* is given full specific rank. The long discredited *Hirundo erythrogaster 'palmeri'* and *Dendroica coronata 'hooveri'* are here revived, and the doubtfully identifiable name *gracilis* is given preference over *striata* for the western form of *Melospiza lincolni*.

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[1] Birds and Mammals of the 1909 Alexander Alaska Expedition. By Harry S. Swarth. University of California Publications in Zoölogy, Vol. VII, No. 2, pp. 9–172, pll. i–vi, 3 text-figs. January 12, 1911.

The climatic and physiographic conditions are said to be quite uniform throughout the area under consideration, and, with the exception of the grouse, "the avian fauna is everywhere much alike." In the case of the mammals, however, "it is interesting to note that with one or two possible exceptions there is no species of mammal that ranges unchanged throughout the whole of the region."— J. A. A.

**Tracy's 'Significance of White Markings in Birds of the Order Passeriformes.'**— The subject[1] is considered under the following captions: Intrinsic factors in the evolution of color; white markings as visual clues; the problem discussed for birds in the open; the problem discussed for arboreal species; special study of the Mniotiltidæ; sexual selection as affecting white patterns; directive markings outside the order Passeriformes; conclusions. The author has here assembled an interesting array of facts, and has discussed them in a liberal spirit. The Passeriform birds of North America are listed in groups with regard to whether they are birds of the open-ground or are arboreal, and are further subdivided with regard to their having or not having concealed white, or white wing and tail markings, etc. In birds of the open, nearly all those with white markings are "to be classed as flocking birds," while those without white marking do not flock, with a few exceptions, for which special explanations are offered.

"Coloration in birds," says the author, "whatever its cause or the mechanism of its production, is conceded to be adaptive; it responds to their needs, forms a part of their life adjustments. Concealment from its enemies is not the only need in a bird's life, not the only adjustment that affects color-patterns. The bird also needs to be made known to other individuals of its kind, and to other species associated with it; and this need has certainly been met.... The number and variety of perils that daily surround our smaller land-birds, and the extent to which these may be diminished by the birds' keeping in touch with one another, point to the need of something more than concealing coloration, and admit of special adaptations that shall act in harmony with it and yet serve to reveal the bird to its kind....

"Starting out with a presumption in favor of some form of revealing clues among the higher land-birds, and eliminating a terminology [banner-marks, etc.] which has been misleading, it remains for us to determine, if possible, what these clues are, and whether color features form a part of them; if so, how this harmonizes with the function of the same or similar color features as concealing.... But *general* coloration is seen to be normally protective, for birds that need protection; and as for special patterns, even a satisfactory demonstration of their 'obliterative' effect does not

[1] Significance of White Markings in Birds of the Order Passeriformes. By Henry Chester Tracy. University of California Publ., Zoöl., VI, No. 13, pp. 285–312. Dec. 28, 1910.

warrant the conclusion that such is solely or mainly their effect in all cases."

In the discussion of white markings that follows these general remarks, the conspicuousness and directive function of white markings that are concealed except in flight is insisted upon. The revealing function of white wing and tail markings "during flight is entirely in harmony with their concealing function when at rest." In Thayer's discussion of the "disruptive effects of color patterns," the author states that the "evidence here offered of their value as *revealing characters*, must not be regarded as contradicting anything but the application of the 'concealing' principle *to birds in flight*."

The following may be taken as the author's general summing of the evidence regarding coloration and environment: "With a preference for close, leafy coverts and secluded forest ways go the somberer tones, the monochrome coloration, shy, furtive habits. With a preference for open woods and roving ways, greater distances and separations to be adjusted, have come the greatest variety of top-patterns among birds, many of them showing excellent devices for a revealing flight from the opening wing." As a whole the paper is a welcome contribution of fact and discussion to a very interesting subject.— J. A. A.

**Grinnell's 'American Game-Bird Shooting.'** — Grinnell's 'American Game-Bird Shooting' [1] comprises three parts, treating respectively of 'American Game Birds,' in which the species and their habits are described (pp. 1–301); 'Upland Shooting' (pp. 303–507); and 'The Shooting of the Future' (pp. 511–558). The first part is ornithological, treating at length and in a very comprehensive manner of the habits and distribution of the Woodcock and Snipe, and the various species of Quail and Grouse of North America. For the purposes of the present book the author has "considered as game birds only the species that are commonly hunted with dogs," and it thus includes only those above indicated. The second part relates to the various methods employed in taking the birds, and such aids to shooting as dogs, guns, and ammunition. The third part comprises 'A Look Backward,' in which is historically set forth the great decline in the original abundance of game birds in this country and the causes that have produced it, and an account of the introduction of exotic game birds to replenish the havoc wrought through excessive destruction of native game birds. There is also an account of the efforts that have been made to restock exhausted covers and a plea for greater self-control on the part of gunners as an aid in promoting good shooting in the future.

Dr. Grinnell writes with the authority of one thoroughly master of his subject, and his 'American Game-Bird Shooting' may well interest a

[1] American Game-Bird Shooting. By George Bird Grinnell. With colored plates of Ruffed Grouse and Bobwhite, 48 full-page portraits of Game Birds and Shooting Scenes, and many text cuts. New York: Forest and Stream Publishing Company. [Copyright, 1910.] 8vo, pp. xviii + 558. $2.50 net; postage, 25 cents.

much wider circle than those who pursue birds with dogs and guns.—J. A. A.

**Report of the Chief of the Bureau of Biological Survey for 1910.**[1]—The report of the Chief of the Biological Survey, Mr. H. W. Henshaw, on the work of the Survey contains the usual summary of its activities for the fiscal year ended June 30, 1910. As is well known to readers of 'The Auk,' the resignation of Dr. C. Hart Merriam, for so many years the efficient director of this important Bureau, became effective June 1, 1910, and the Assistant Chief, Mr. H. W. Henshaw was promoted to the vacancy, with Dr. T. S. Palmer as Assistant Chief, Dr. Merriam still retaining an official connection with the Survey under the title of Consulting Biologist. The present report therefore deals mainly with the period preceding the change in administration.

In a document so condensed, and dealing with so many subjects of general interest, reference can here be made only to those more especially relating to ornithology. Investigations of the economic relations of birds and mammals to agriculture, of the geographic distribution of animals and plants with reference to the determination of the life and crop belts of the country, the supervision of matters relating to game preservation and protection, and the importation of foreign birds and animals, are the prescribed functions of the Survey under acts of Congress. Field work was conducted during the year in twelve different States, in continuation of that of previous years. The biological survey of Colorado and New Mexico is now practically completed and the final reports thereon are nearly ready for publication. It is stated that satisfactory progress has been made in digesting and putting into shape for easy reference the accumulated mass of information on mammals and birds, including a great amount of data on the migration and distribution of North American birds. Rapid advance has also been made in mapping the distribution of both birds and mammals. A revised edition of a general zone map of the United States is also in preparation.

Under the head of National Bird Reservations, which number 51, divided into six districts, it is said: "Experiments in marking birds with bands to determine the course of migration were initiated on the Stump Lake (N. Dak.) and Klamath Lake (Oreg.) reservations, and investigations to determine the homing instinct and the power of birds to find their way back to the breeding grounds, begun by Prof. J. B. Watson in 1907 on the Tortugas (Fla.) reservation, under the direction of the Carnegie Institution, were continued in the spring of 1910."

Game protection, illegal traffic in game, coöperation in game protection with State authorities, the supervision of the importation of foreign birds and animals, investigation of the food habits of ducks, the relation of birds

[1] Reprinted from Annual Reports of the Department of Agriculture, 1910. 8vo, pp. 19. Washington, Government Printing Office, 1910.

to insect pests and the fruit industry, are among the numerous subjects treated in the Report, but perhaps of even greater importance are the investigation of ground squirrels and wood rats in their relation to the dissemination of the spotted fever and the bubonic plague, and of means to reduce their number, and, where necessary, to effect their extermination. The scope and efficiency of the work of the Survey is thus extended year by year to meet new emergencies and conditions; its work along economic lines is thus of the highest importance to the general welfare, in addition to its biologic phases.— J. A. A.

**Jacobs on the Purple Martin and Houses for its Summer Home.**— Mr. J. Warren Jacobs contributes further welcome information [1] regarding his success in supplying houses for the summer homes of the Purple Martin. This brochure of 38 pages contains a list of persons who have put up his martin houses, with many reports from correspondents concerning the success that has attended their use. These reports are followed by several pages "On Snakes as Bird Destroyers, and their Power to 'Charm.'" From the statements here made it is evident that snakes are quite destructive to not only the eggs and young of birds that nest on the ground, but also to those nesting in bushes and trees, and that even Martins nesting in bird houses are not wholly exempt from their attacks.— J. A. A.

'**How to Attract and Protect Wild Birds.**'— This second English edition of Hiesemann's well known work [2] presents many new features and shows that there is a large demand for the English version of this very useful and excellent manual of how to attract and how to promote the increase of wild birds, as well as how to protect them from natural enemies, based on the well-known devices and experiments made during many years of close study of the subject by Baron von Berlepsch on his estate at Seebach, Germany. The legal aspect of bird protection is not treated; protection here means the provision of nesting-places for birds that breed not only in holes in trees and in sheltered niches, but also for those that breed in the open, as in fields and marshes, and in thickets and woods. Protection, in other words, means the preservation, so far as possible, of natural conditions and haunts, as well as the erection of artificial nesting-sites. A chapter is devoted to the feeding of birds in winter, and the various methods employed are illustrated as well as described.

The author refers to the principle of utilitarianism that is now so widespread among all classes of society, but has the courage to say: "We do

[1] Second Supplement to Gleanings No. 5. The Purple Martin (*Progne subis subis*) and Houses for its Summer Home. By J. Warren Jacobs. Waynesburg, Pa. Issued November 1, 1910. 8vo, pp. 57–94, with halftone illustrations.

[2] How to | Attract and Prot ct | Wild Birds | By | Martin Hiesemann | Translated by | Emma S. Buchheim | With an Introduction by | Her Grace the Duchess of Bedford | Second edition with many revisions | With many illustrations | London | Witherby & Co. 326 High Holborn | 1911. 8vo, pp. 100, 40 text figures. 1s. 6d. net. Can also be ordered of the National Association of Audubon Societies, 1974 Broadway, New York City. (Note the change of address.)

not protect birds solely because they are useful, but chiefly from ethical and æsthetical reasons, as birds give beauty and animation to nature. We also wish to preserve their species, and hence the protection of birds signifies the preservation of the monuments of Nature." The very full and reasonable instructions here given would be of great service to those in any country who are willing to make a little effort for the preservation and increase of birds, and it is thus fortunate that the National Association of Audubon Societies is an agency for the sale of the work in America.—J. A. A.

**Economic Ornithology in recent Entomological Publications.**—The oak pruner (*Elaphidon villosum*), a longicorn beetle that seriously injures oaks, hickories, peach and pear trees, is the subject of a recent circular of the Bureau of Entomology.[1] The author, Dr. F. H. Chittenden, says: "Among natural enemies of the oak pruner, Mr. F. H. Mosher records the Downy Woodpecker (*Dryobates pubescens*), the Blue Jay (*Cyanocitta cristata*), and the Black-capped Chickadee (*Penthestes atricapillus*). Mr. W. L. McAtee of the Bureau of Biological Survey, states that a species of *Elaphidion* is preyed upon by the Downy Woodpecker and by the Great-crested Flycatcher (*Myiarchus crinitus*)." Dr. Chittendon has also recently published an account[2] of the wild bird enemies of the potato beetle (*Leptinotarsa decemlineata*) in which the Chipping Sparrow receives fullest mention. Four species not recorded by Dr. Chittenden are the Starling, Chewink, Cliff Swallow, and Cedarbird, the complete list being: Bobwhite, Prairie Chicken, Sharp-tailed and Ruffed Grouse, Red-tailed Hawk, Nighthawk, Yellow-billed Cuckoo, Crow, Starling, English Sparrow, Chipping Sparrow, Chewink, Cardinal, Rose-breasted Grosbeak, Scarlet Tanager, Cliff Swallow, Cedarbird, Wood, Hermit and Olive-backed Thrushes, and Robin.

The writer of 'The Life History and Control of the Hop Flea-Beetle,'[3] the subject of which is a chrysomelid beetle which has destroyed 75 percent of the crop in some seasons in certain parts of British Columbia, thinks it possible that the insect has some bird enemies, but mentions none. Biological Survey records furnish the names of two, the Killdeer (*Oxyechus vociferus*) and the Cliff Swallow (*Petrochelidon lunifrons*).

A few paragraphs in the Report on the Field Work against the gipsy moth and the brown-tail moth[5] shows that interest in the bird enemies of these pests is unabated. As there has been but one[4] complete list of the bird enemies of the gipsy moth published since the original report by Forbush and Fernald in 1896 and none complete for the brown-tail,[6] revised lists will not be out of place in the present connection.

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[1] Circular 130, Bur. Ent., Dec., 1910, p. 7.
[2] Bull. 82, Pt. VII, Bur. Ent., Feb. 1911, p. 87.
[3] Parker, W. B., Bull. 82, Pt. IV, Bur. Ent., May, 1910, p. 48.
[4] Forbush, E. H., Massachusetts Crop Report, July, 1900, pp. 33, 34.
[5] Bull. 87, Bur. Ent., Aug., 1910, pp. 26–27.
[6] The Gypsy Moth. Massachusetts State Bd. Agr., Boston, 1896, pp. 207–208.

The following list is made to show the number of known bird enemies of both the gipsy and brown-tail moths, by prefixing the initials G and B respectively before the names of birds to which these credits are due. Forty-six birds receive the G and thirty-one the B.

G B Yellow-billed Cuckoo.....*Coccyzus americanus*
G B Black-billed Cuckoo.....*Coccyzus erythrophthalmus*
G Hairy Woodpecker.....*Dryobates villosus*
G Downy Woodpecker.....*Dryobates pubescens*
G Yellow-bellied Sapsucker.....*Sphyrapicus varius*
G Flicker.....*Colaptes auratus*
G B Kingbird.....*Tyrannus tyrannus*
G B Great-crested Flycatcher.....*Myiarchus crinitus*
G Phœbe.....*Sayornis phœbe*
G Wood Pewee.....*Myiochanes virens*
G B Least Flycatcher.....*Empidonax minimus*
G B Blue Jay.....*Cyanocitta cristata*
G B Crow.....*Corvus brachyrhynchos*
G B Red-winged Blackbird.....*Agelaius phœniceus*
G B Baltimore Oriole.....*Icterus galbula*
G B Crow Blackbird.....*Quiscalus quiscula*
G B English Sparrow.....*Passer domesticus*
G B Chipping Sparrow.....*Spizella passerina*
B Field Sparrow.....*Spizella pusilla*
G B Song Sparrow.....*Melospiza melodia*
G Chewink.....*Pipilo erythrophthalmus*
G B Rose-breasted Grosbeak.....*Zamelodia ludoviciana*
G B Indigo Bunting.....*Passerina cyanea*
G B Scarlet Tanager.....*Piranga erythromelas*
G B Red-eyed Vireo.....*Vireosylva olivacea*
G B Yellow-throated Vireo.....*Lanivireo flavifrons*
G White-eyed Vireo.....*Lanivireo griseus*
B Warbling Vireo.....*Vireo gilvus*
G B Black and White Warbler.....*Mniotilta varia*
G B Golden-winged Warbler.....*Vermivora chrysoptera*
G B Nashville Warbler.....*Vermivora rubricapilla*
G Parula Warbler.....*Compsothlypis americana*
G B Yellow Warbler.....*Dendroica æstiva*
G B Chestnut-sided Warbler.....*Dendroica pensylvanica*
G Black-throated Green Warbler.....*Dendroica virens*
G Oven-bird.....*Seiurus aurocapillus*
G Maryland Yellow-throat.....*Geothlypis trichas*
G B Redstart.....*Setophaga ruticilla*
G B Catbird.....*Dumetella carolinensis*
G Brown Thrasher.....*Toxostoma rufum*
G House Wren.....*Troglodytes ædon*
G White-breasted Nuthatch.....*Sitta carolinensis*

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|---|---|---|
| G | Red-breasted Nuthatch | *Sitta canadensis* |
| G B | Chickadee | *Penthestes atricapillus* |
| G B | Veery | *Hylocichla fuscescens* |
| G B | Wood Thrush | *Hylocichla mustelina* |
| G B | Robin | *Planesticus migratorius* |
| G | Bluebird | *Sialia sialis* |

Messrs. Rogers and Burgess, authors of the report on the gipsy and brown-tail moths, note that "A few species, among which may be mentioned the Crow, while destroying many of the larvæ, undoubtedly aid the spread of the gipsy moth by dropping live caterpillars in uninfested sections." The subject of the distribution of the moth by birds has nowhere received as full consideration as in the original report referred to above (pp. 235–240). It is recorded there that the Wood Thrush, Chickadee, and Least Flycatcher were seen to drop caterpillars or female gipsy moths from their beaks, and that a young Baltimore Oriole refused a larva which the parent bird brought, dropping it over the side of the nest. Circumstantial evidence points to the formation of new colonies about Crow's nests.

The authors, Messrs. Forbush and Fernald, remark that "A bird may overlook a few caterpillars near its nest, preferring to go where caterpillars are plentiful rather than to search for them where they are scarce. It is probable, then, that the bird which is most useful in destroying caterpillars and which feeds the largest number to its young will be the most likely to aid in the distribution of the moth. The danger of distribution would probably be greater in the case of the larger species of birds, were it not that a caterpillar seized in the bill of a Crow would be more likely to be seriously injured than one taken in the bill of a small bird. The danger of distribution to distances of much more than half a mile by birds in this way does not seem to be great. . . . The distribution of caterpillars by birds goes to prove the rule that nature does not usually work for the extermination of species. While the birds are very useful as assistants in the work of extermination by destroying the gypsy moths, they hinder the work to some extent by distributing the larvæ and the female moths.

"No appreciable distribution of caterpillars by birds will occur, however, except when caterpillars are present in large numbers, for then only will birds go to a distance to secure caterpillars as food for their young. Probably no other form of dissemination of caterpillars by birds will materially extend the moth's distribution even under the most favorable conditions. Whenever the caterpillars are present in large numbers in a settled country, they will be carried much farther and scattered abroad more widely by man and domestic animals than by birds. In woodlands remote from civilization, birds may be the principal factor in diffusing the moth to a short distance from badly infested spots, but the distribution of the moth in such places is not of so much moment as in cultivated and settled regions. If the moth were allowed to increase and spread over the whole State, we

may infer that all possible distribution by birds would be of little importance as compared with the good they would do in checking the increase of the moth."

The question as to distribution of gipsy moth eggs by birds has recently been revived and as a coincidence by two independent investigators whose results were published in the August issues of different entomological journals.[1] Both of these articles deal with experimental feedings of caged birds. Mr. William Reiff used the European Yellow-Hammer, Chaffinch, Canary and Carrier Pigeon, the Japanese Robin, and one native species, the Screech Owl. The moth eggs were mixed with or placed within other food before they were given to the birds. The Canary and the Chaffinch picked out and rejected most of the eggs, but a few that passed through the alimentary canal of the former failed to hatch. Twelve eggs passed by the Yellow-hammer likewise failed to hatch. Three out of 52 eggs passed by the Japanese Robin hatched. Of 120 eggs concealed in the abdomen of a mouse which was fed to a Screech Owl, 112 came through the alimentary canal of the bird. Seven of these hatched. None of the eggs fed to the Carrier Pigeon were found in the excrement. The writer concludes that "Gypsy moth eggs can withstand the action of digestive fluids of birds belonging to at least two families, Turdidæ and Bubonidæ, without suffering any, or only slight, injury. In regard to the family, Fringillidæ, also an insectivorous group," he says, "I am inclined to believe that these birds might also occasionally distribute gypsy moth eggs in spite of the negative results obtained in my experiments. Since the members of the pigeon family grind up their food in a gizzard filled with small stones it is very unlikely that gypsy moth eggs could pass through their intestines without being destroyed."

These conclusions are too sweeping; it would have been better to have said that the eggs can sometimes withstand the action of digestive fluids or that they have been shown to do so in a few cases under experimental conditions. The conclusion regarding sparrows has no justification in the experiments reported. Objections to this paper which apply equally the one discussed below will be united with comments on that article.

Mr. C. W. Collins experimented with English Sparrows and a pigeon. The writer says: "The sparrow was chosen . . . . mainly because it has been known to feed upon the eggs in confinement; the pigeon, merely to determine if the eggs would be digested. In all cases it was necessary to force the birds to eat them." In the case of the English Sparrows this was done by putting the eggs well into the mouth by means of a toothpick; and a mixture of dough and eggs was forced into the pigeon's beak. Three of the sparrows were confined in small boxes, and the ten used in the experi-

[1] Reiff, W., Some Experiments on the Resistance of Gypsy Moth Eggs to the Digestive Fluids of Birds. Psyche, XVII, 1910, pp. 161–164.

Collins, C. W., Some Results From Feeding Eggs of *Porthetria dispar* to Birds. Journ. Ec. Ent., III, 1910, pp. 343–346.

ments lived on the average only about 34 hours after capture. "Approximately 356 *P. dispar* eggs were fed to the last three sparrows. One hundred and forty-two of these eggs or 40 per cent. were found intact in the excrement. Seven of the 356 (2 per cent) or 5 per cent of the 142 that were passed intact hatched. One hundred and thirty-five or 38 per cent was the approximate number found to be digested or partly so." The excrement of the pigeon contained no intact eggs.

The writer admits that the "experiments were conducted under abnormal conditions. The birds were not only forced to swallow the food, but were deprived of their freedom, which is essential to rapid and vigorous digestion." We would add that it would have been much better to have selected for experiment birds such as Chickadees that are known habitually to feed upon lepidopterous eggs. Observations on these birds in a roomy cage and with choice of a variety of food, including gipsy moth eggs, might furnish some data having a bearing on the natural distribution of the eggs.

But experiments upon an owl and such preëminently granivorous species as the fringilline birds and pigeons, especially when these birds are very closely confined and have their few last mouthfuls of food, in which gipsy moth eggs are concealed, forced upon them, depart too far from natural conditions. So abnormal were both sets of experiments that it is doubtful if the results shed any light on the distribution of gipsy moth eggs by genuine egg-eating birds in the state of nature.

One other entomological paper to which we wish to draw attention also deals with insect eggs. This is Mr. Henry H. P. Severin's 'Study on the Structure of the Egg of the Walking-Stick *Diapheromera femorata* Say, and the Biological Significance of the Resemblance of Phasmid Eggs to Seeds."[1] The writer says: "Sharp in all the species which he has examined believes that these resemblances in the eggs have no bionomic importance for the species and I am strongly inclined to accept his view in the case of the egg of *Diapheromera femorata*." This statement is very welcome to economic ornithologists, who have suffered long, though chiefly in silence, from the deluge of theoretical essays on the supposed relations of birds to mimicry and kindred phenomena among insects.

Mr. E. G. Titus is the author of an interesting bulletin of the Utah Experiment Station[2] dealing with the alfalfa leaf-weevil (*Phytonomus murinus*), a pest of foreign origin recently introduced and doing immense damage in the State. Some attention was paid to natural enemies, and it is said that "wild birds do not appear to relish the weevil, or perhaps they have not become accustomed to its presence." Twenty out of 80 English Sparrows shot in alfalfa fields had eaten the weevil. One Black-headed Grosbeak was collected and found to have eaten the weevil. These results do not warrant the statement made in this Bulletin and elsewhere that "wild birds do not appear to relish the weevil," for really only one bird

[1] Ann. Ent. Soc. Am., III, 1910, pp. 83–92.

[2] Bull. 110, 1910, pp. 19–72.

was examined that could be reasonably expected to feed extensively on the insect, and its stomach contained remains of some of the pests. Judging from the fondness of birds for the clover leaf weevil (*Phytonomus punctatus*) and other species of the genus, a large number of birds will probably be found to prey upon the alfalfa weevil.— W. L. M.

**Corrections and Additions to January Installment of Economic Ornithology.**— In the list of mosquito-eating birds on p. 141 of the January, 1911, Auk is included the Whip-poor-will (*Antrostomus "carolinensis"*). The specific name should of course be *vociferus*. On the authority of Jas. H. Gaut, formerly of the Biological Survey, the name of the Northern Violet-green Swallow (*Tachycineta t. lepida*) may be added to this list. The writer has recently found mosquitos in the gizzard of a Mallard (*Anas platyrhynchos*).

Three additional species also are noted in Bulletin 3 of the West Virginia Experiment Station; but the correctness of these records is said to be open to question.

An additional reference to tick-eating birds is Auk, XXIV, 1907, p. 401, where E. S. Cameron states that the Brewer Blackbird (*Euphagus cyanocephalus*), the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), and the Red-winged Blackbird (*Agelaius phœniceus arctolegus*) feed upon sheep ticks in Montana. A newly discovered enemy of the Texas-fever tick is the Fish Crow (*Corvus ossifragus*).— W. L. M.

**Faxon on Brewster's Warbler.**[1]— This paper is a most important contribution to our knowledge of Brewster's, or the White-throated Warbler, *Helminthophila leucobronchialis*, and practically settles the question whether this is a hybrid or a legitimate species. It is a record of a series of observations made on three families of warblers during the summer of 1910.

In two cases the male birds were Golden-winged Warblers and the females Brewster's Warblers; in the third instance both parents were Golden-wings; the young of the first two pairs lacked the clear markings of the Golden-wing, the young of the third pair were unmistakable Golden-wings. The detailed observations on the three families just noted are followed by a statement and discussion of the various hypotheses advanced as to the status of Brewster's Warbler, some sixteen cases being reviewed briefly. Finally the known facts are viewed in the light of Mendel's Law, the inference from this, and from the known facts being that Brewster's Warbler is a hybrid between *Helminthophila pinus* and *H. chrysoptera*, a deduction quite in keeping with the fact that no instance is known of a mated pair of Brewster's Warbler.

[1] Brewster's Warbler. By Walter Faxon. Memoirs of the Museum of Comparative Zoölogy at Harvard College, Vol. XL, No. 2, pp. 57–78, with one colored plate (to be supplied).

If the information gained is important, the manner in which it is imparted is somewhat exasperating to one unacquainted with previous papers on the subject. The title of the memoir affords no clue to its import; there is no statement of the problem under consideration, and for the first ten pages there is nothing to hint that there is any question as to the specific validity of the bird under consideration; furthermore in no instance do the common and scientific names occur in conjunction. Nevertheless we are much indebted to Mr. Faxon for the memoir.— F. A. L.

'**Cassinia.**'[1]—The present issue contains a biographical sketch of Dr. William Gambel, by Witmer Stone; an 'Unpublished poem by Alexander Wilson,' by Robt. P. Sharples; 'Breeding of the Raven in Pennsylvania,' by Richard C. Harlow; 'The Wood Thrush,' by Cornelius Weygant; 'Nesting of the Blackburnian Warbler in Pike Co., Pa.,' by David E. Harrower; 'Recollections of Wild Pigeons in Southeastern Pennsylvania, 1864–1881,' by John G. Dillin; 'Report on the Spring Migration of 1910,' by Witmer Stone; the usual 'Abstract of Proceedings of the Delaware Valley Ornithological Club for 1910'; 'Bibliography for 1910' of papers relating to the birds of Pennsylvania, New Jersey and Delaware, and the usual 'Bird Club Notes' and list of officers and members. The frontispiece is a view of the building occupied by the Academy of Natural Sciences of Philadelphia from 1826–1840, at the corner of Twentieth and Sansom Streets, Philadelphia.

Mr. Stone's biographical sketch of Dr. William Gambel, well known to ornithologists through the various species of North American birds associated with his name, as described by him or named in his honor, presents the little that is known of his personal history. He is supposed to have been born "somewhere in eastern Pennsylvania or southern New Jersey, and to have early attracted the attention of Thomas Nuttall"; but his actual place of birth appears to be unknown, nor is anything known to Mr. Stone of his family history or of his relatives, nor has he been able to find a portrait of this distinguished pioneer in ornithological research in the wilds of the far West. From Mr. Stone's sketch we learn that he was employed for a short time at the Philadelphia Academy of Natural Sciences, and in 1847 was a candidate for the curatorship, but was defeated by the late Dr. Joseph Leidy. He served, however, as Recording Secretary in 1848–49, and on the Publication Committee, 1845–49. When little more than twenty-one years of age he made an overland trip to California, returning by way of Valparaiso and Cape Horn to Philadelphia in 1845. On this trip he secured the various new species of North American birds described by him soon after his return. In the winter of 1845 he began the study of medicine, obtaining his medical degree in 1848. In April, 1849, he started on a second overland journey to the Pacific coast, leaving Inde-

[1] Cassinia, A Bird-Annual: Proceedings of the Delaware Valley Ornithological Club of Philadelphia. No. XIV, 1910. 8vo, pp. 61, and frontispiece, March, 1911.

pendence, Missouri, May 1, having joined "a Virginia Company of five men, one wagon and eight mules." On June 2 the party overtook a large ox-train on the Platte River, under the command of Captain Boone of Kentucky, which Gambel joined in the capacity of medical assistant. After many months of hardship, Boone's train reached the Sierra, where heavy falls of snow compelled the abandonment of the cattle and wagons, and the men endeavored to cross the mountains with such provisions as they could carry. Most of them perished, "but Boone, Gambel, and a few others succeeded in making their way to Rose's Bar on Feather River," in what is now Plumas County, California. Here, on December 13, 1850, Gambel died of typhoid fever, at the early age of about thirty years.— J. A. A.

**Mathews's 'Birds of Australia.'** — Part 2[1] of this great work completes the Turnicidæ and includes the Treronidæ and part of the Columbidæ. In this part fourteen species are figured and described, and both text and plates conform to the high standard set in Part 1, noticed in detail in the January issue of this journal.— J. A. A.

**McGee's 'Notes on the Passenger Pigeon.'** — In the issue of 'Science' for December 30, 1910, Dr. McGee, in an article of five and a half pages,[2] gives his recollections of the Passenger Pigeon as observed by him in eastern Iowa "in the sixties and early seventies," and of other pigeons he mistook for this species in 1905 in the "Sierra Gila, seventy-five miles southwest of Yuma and near the Mexican boundary." His recollections of Passenger Pigeons in Iowa form a welcome addition to the reminiscences of a species now probably extinct as a wild bird, but the Arizona notes are unfortunately based on an evident misidentification of a species known locally in the arid Southwest as the "Sonora Pigeon." Although his account of its habits and appearance is detailed, and in some ways conforms to the characters of the Passenger Pigeon, no specimens were saved for positive identification, and in the light of our present knowledge of the habits and range of this species doubtless few ornithologists will be willing to accept his record of the Passenger Pigeon in arid southwestern Arizona as a valid record for the species without the confirmation of actual specimens from the region in question. The pros and cons of the case were considered in a later issue of 'Science.'[3] — J. A. A.

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[1] Birds of Australia. By Gregory M. Mathews. Part 2, January 31, 1911. Royal 4to, pp. 97–136, pll. xxii–xxxv, colored. Witherby & Co., London.

[2] For full title and conditions of publication see the notice of Part 1, *antea*, pp. 135, 136.

Notes on the Passenger Pigeon. By W J McGee. Science, N. S., Vol. XXXII, pp. 958–964, December 30, 1910.

[3] The Arizona 'Passenger Pigeons'. By J. A. Allen. Science, Vol. XXXIII, pp. 217–219, February 10, 1911.

**Publications Received.— Allen**, J. A. (1) The Arizona 'Passenger Pigeons.' (Science, N. S., XXXIII, No. 841, pp. 217–219, Feb. 10, 1911. (2) *Columbina* vs. *Chæmepelia*. (*Ibid.*, No. 844, pp. 336, 337, March 3, 1911.)

**Faxon**, Walter. Brewster's Warbler. (Mem. Mus. Comp. Zoölogy, XL, No. 2, pp. 57–78, with colored plate. Jan., 1911.)

**Henshaw**, Henry W. Annual Report of the Chief of the Bureau of Biological Survey. (Reprinted from Ann. Rep. U. S. Depart. Agricul., 1910.)

**Hiesemann**, Martin. How to Attract and Protect Wild Birds. Second Edition. Witherby & Co., London, 1911.

**Mathews**, Gregory M. The Birds of Australia. Part 2. Jan. 31, 1911. Witherby & Co., London.

**Oberholser**, Harry C. A Monograph of the Flycatcher Genera *Hypothymis* and *Cyanonympha*. (Proc. U. S. Nat. Mus., XXXIX, No. 1803, Feb. 25, 1911.)

**Swarth**, Harry S. Birds and Mammals of the Alexander Alaska Expedition. (Univ. California Publ. in Zoöl., VII, No. 2, pp. 9–172, pll. i-vi. Jan. 12, 1911.)

**Tracy**, Henry Chester. Significance of White Markings in Birds of the Order Passeriformes. (Univ. California Publ. in Zoölogy, VI, No. 13, pp. 285–312. Dec. 28, 1910.)

**Zimmer**, John T. Some Notes on the Winter Birds of Dawes County, Nebraska. (Proc. Nebraska Orn. Union, V, No. 2, 1911.)

**Annals** of Scottish Nat. Hist., No. 77, Jan., 1911.

**Aquila**, XVII, 1910.

**Avicultural** Magazine, (3) II, Nos. 3–5, Jan.–March, 1911.

**Bird-Lore**, XIII, No. 1, Jan.–Feb., 1911.

**British** Birds, IV, Nos. 8–10, Jan.–March, 1911.

**Bulletin** British Orn. Club, Nos. CLXV–CLXVII. 1911,

**Bulletin** Charleston Mus., VI, Nos. 7–8, 1910, VII, Nos. 1–3, Jan.–March, 1911.

**Cassinia**, No. XIV, 1910 (March, 1911).

**Condor**, The, XIII, Nos. 1–3, Jan.–March, 1911.

**Emu**, The, X, Part 3, Dec., 1910, Part 4, Jan., 1911.

**Forest** and Stream, LXXVI, Nos. 1–13, 1911.

**Journal** für Orn., LIX, Heft. 1, Jan., 1911.

**Journal** Maine Orn. Soc., XII, No. 4, Dec., 1911.

**Messager** Ornithologique, I, No. 14, 1910.

**Ornithologisch** Monatsberichte, Nos. 1–3, Jan.–March, 1911.

**Ornithologische** Monatsschrift, XXXV, Nos. 11 and 12, 1910, XXXVI, No. 1, 1911.

**Ornithologisches** Jahrbuch, XXI, Heft 4.

**Ottawa** Naturalist, XXIV, Nos. 10–12, 1911.

**Proceedings** Acad. Nat. Sci. Philadelphia, LXII, Pt. 3, Oct.–Dec., 1910.

**Proceedings** California Acad. Sci., (4) I, pp. 7–288, Jan. 20, 1911.

**Revue** Française d'Orn., II, Nos. 11–18, 1910.
**Science**, N. S., XXXIII, Nos. 836–847, 1911.
**Wilson** Bulletin, XXII, Sept.–Dec., 1910.
**Zoölogical** Society of London, Abst. of Proc., Nos. 89–92, 1911.
**Zoölogist**, The, (4) XV, Jan.–March, 1911.

## NOTES AND NEWS.

GEORGE ERNEST SHELLY, a Corresponding Fellow of the American Ornithologists' Union, died in London, November 29, 1910. A notice of his life and works will be given in a later number of this journal.

IN THE biographical notice of Manly Hardy, published in the January number of this journal (Auk, XXVIII, 1911, p. 150), he is said to have been elected an Associate Member of the American Ornithologists' Union at its first meeting held in 1883, and that "he retained this membership till 1901." By an unfortunate inadvertence the important fact that he was then transferred to the newly established class of Members was not mentioned. He was not only one of the first to be elected to this class, but remained an honored member of it till his decease.

THE Audubon Society of the State of New York held its Fourteenth Annual Meeting at the American Museum of Natural History, March 16, 1911. In the absence of the President of the Society, Prof. Henry Fairfield Osborn, Dr. F. A. Lucas presided. The report of the Secretary-Treasurer, Miss Emma H. Lockwood, showed that the past year had been one of unusual activity in the prosecution of its work. Mr. T. Gilbert Pearson, Secretary of the National Association of Audubon Societies, presented a report on current legislation, with particular reference to bills to amend the present bird laws now before the New York Legislature, in order to make the present laws less efficient in behalf of the millinery interests, market hunters, and cold-storage dealers in game. Mr. Herbert K. Job gave an illustrated address on 'Bird Hunting with a Camera.'

THE National Association of Audubon Societies, having found its old quarters at 141 Broadway, New York City, too cramped for its activities, has moved further up town, having taken rooms at 1974 Broadway, near the corner of 67th Street. Here much more commodious rooms have been secured at less cost, and at a point convenient of access from any part of the city. Correspondents of the National Association and intending visitors to its headquarters should carefully make note of the change of address to **1974 Broadway,** near the subway and elevated railway stations at 66th Street and Broadway, New York City.

MR. FRANK M. CHAPMAN, curator of birds at the American Museum of Natural History, sailed from New York on March 13 for several months of field work in western Colombia, in the interest of the American Museum.

In addition to the general collecting of birds and mammals, he will secure materials for a series of habitat groups of characteristic forms of tropical bird life. He took with him from New York Mr. Louis Agassiz Fuertes, the well-known bird artist, and Mr. Leo E. Miller of Indianapolis, Ind., as assistants, and will be joined in the field by Mr. W. B. Richardson, who in recent years has made large collections of birds and mammals, in Nicaragua for the American Museum, and who for the last four months has been in the field in western Colombia. The party expected to land at Buenaventura about March 25, and proceeding inland by way of San Antonio, establishing headquarters later at Cali, in the Cauca Valley, and, if time permits, visiting Quito, and returning by way of Guayaquil.

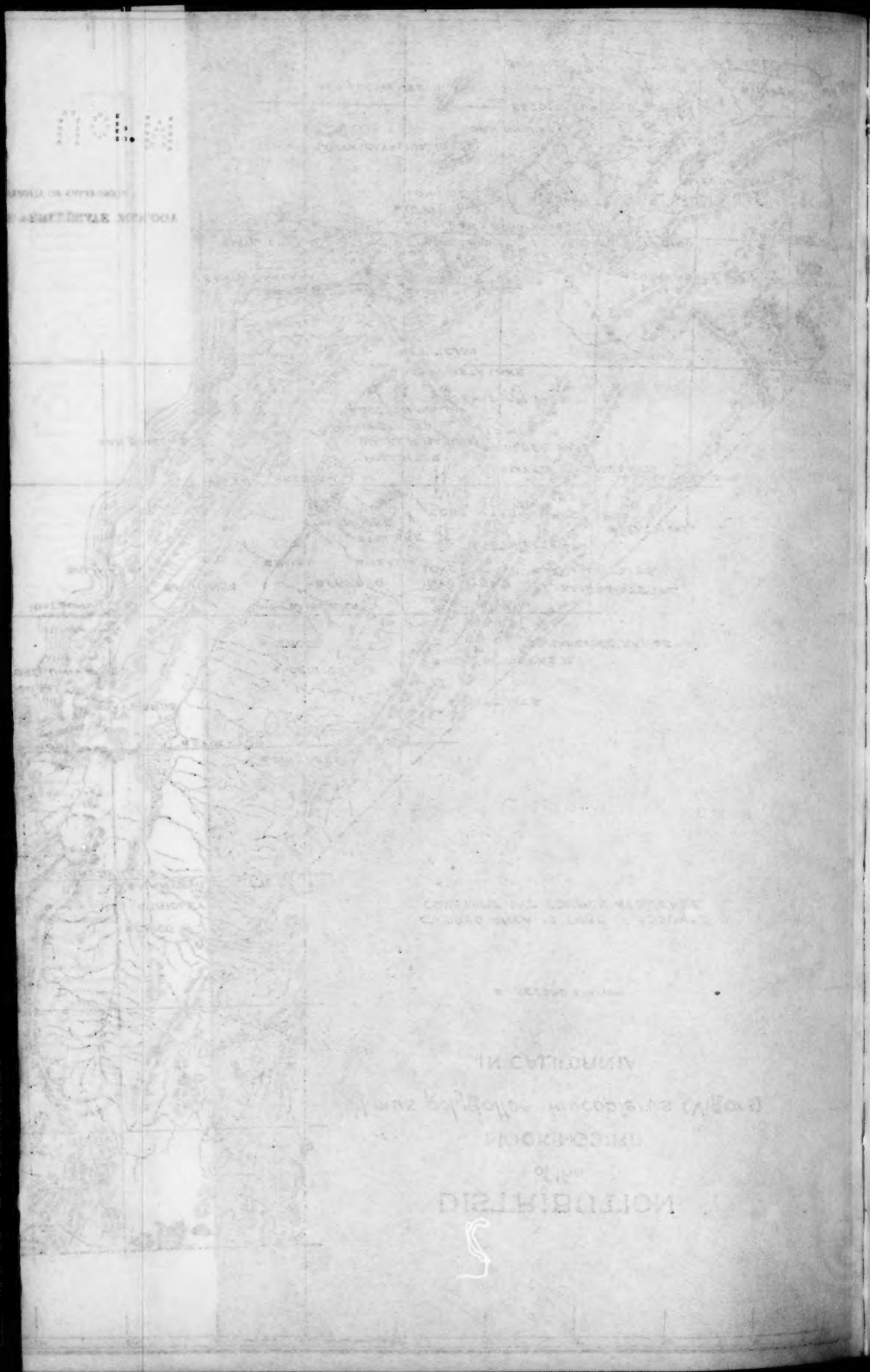
Mr. A. C. Bent, of Taunton, Mass., is organizing an expedition to the Aleutian Islands for the purpose of making a thorough biological survey of that interesting region, covering practically the whole of the summer season. Negotiations are now on foot to secure the use of a Revenue cutter to take the party, which will consist of three scientific men in addition to Mr. Bent. Mr. Rollo H. Beck, well known for his work in the Galapagos Islands and along the coast of California, has already been engaged, and it is probable that the United States National Museum and the Biological Survey will each send a representative.

The expedition will probably start in May, beginning work at Attu Island, the westernmost of the Near Islands, and proceeding slowly eastward during the summer, will visit and thoroughly explore all of the important islands of the Aleutian chain, and possibly visit some of the islands in Bering Sea. The expedition will be fully equipped to take photographs, and to collect mammals, birds, plants, and other natural history material.

Through coöperation between the American Museum of Natural History and the United States Bureau of Fisheries the steamer 'Albatross' sailed from San Diego, California, on a two months' collecting trip and survey of the fishery resources of the waters about Lower California. The expedition is under the direction of Dr. Charles H. Townsend, Acting Director of the American Museum, who is supported by able assistants selected expressly for the work to be undertaken. This will consist of deep-sea dredging, a fishery survey of the coasts of the peninsula, and land collecting at frequent points from San Diego southward, particularly for birds and mammals.

Dr. Townsend has the advantage of previous familiarity with most of the points to be visited, and can thus wisely select the localities for the shore parties, which will be transferred frequently from point to point. A line of deep-sea dredgings was first run to Guadaloupe Island, and the success of the trip to Guadaloupe has been demonstrated by the recent arrival at the Aquarium in New York of six young elephant seals taken there, while skeletons and skins of others, including adults, were secured for the American Museum.

Doubtless the work of the expedition will add materially to our knowledge of the fauna and flora of Lower California.



DISTRIBUTION
of the
MOCKINGBIRD
Mimus polyglottos leucopterus (Vigors)
IN CALIFORNIA
RECORD STATION
COLORED AREA IS THAT OF ASSUMED CONSTANT AND COMMON RESIDENCE
CHICO
ORIDLE
MARYSVILLE
BUTTE
SAN GERONIMO
BIG TREES
SEBASTOPOL
COPPEROPOLIS
WHITE MTS.
REDWOOD CITY
STANFORD UNIV.
HORNITOS
MERCED
HEAD OF OWENS R.
GRAPEVINE RANGE
MADERA
FRESNO
INYO MTS.
MESQUITE VAL.
RAISIN
VISALIA
LONE PINE
PANAMINT MTS.
TULARE
KELSO
DEATH VAL.
EL MOORE
COSO MTS.
COSO VAL.
TULARE LAKE
SARATOGA SPS.
LITTLE OWENS LAKE
POSO MTS.
WALKER BASIN
WALKER PASS
SAN SIMEON
PASO ROBLES
BAKERSFIELD
TEHACHAPI MTS
BUTTONWILLOW
TEHACHAPI PASS
BUENA VISTA LAKE
PROVIDENCE MTS.
WASIOJA
FT. TEJON
SANTA PAULA
SANTA BARBARA
VENTURA
SAN FERNANDO
GLENDORA
CUSHENBURY SPS.
SAN BERNARDINO
SANTA CRUZ ID.
PASADENA
POMONA
RIVERSIDE
RIVERSIDE MT.
LOS ANGELES
SAN PEDRO
LONG BEACH
INDIO
MECCA
SANTA CATALINA ID.
SAN ONOFRE
JULIAN
ESCONDIDO
POWAY
IMPERIAL
SAN CLEMENTE ID.
SAN DIEGO
COYOTE WELL
MUSEUM OF VERTEBRATE ZOOLOGY
UNIVERSITY OF CALIFORNIA
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